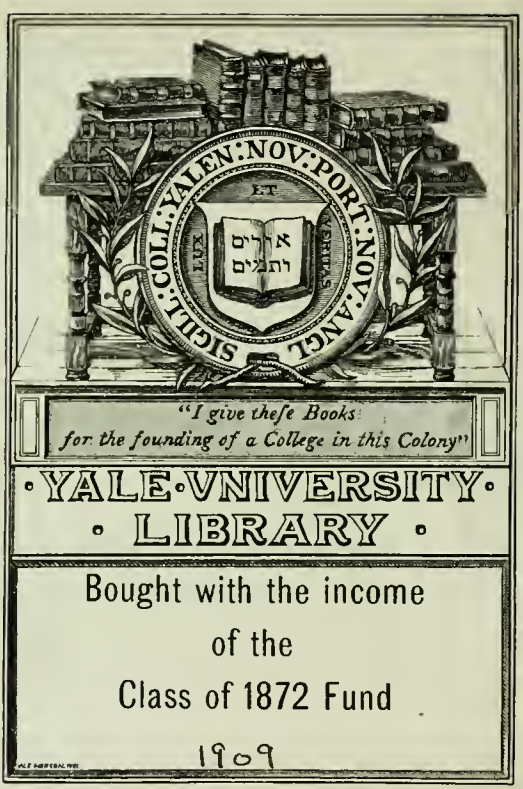
IRELAND'S CRUSADE AGAINST TUBERCULOSIS

I.—THE PLAN OF CAMPAIGN

EDITED BY
THE COUNTESS
OF ABERDEEN



IRELAND'S CRUSADE AGAINST TUBERCULOSIS

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Being a Series of Lectures delivered at the Tuberculosis Exhibition, 1907, under the Auspices of the Women's National Health Association of Ireland

EDITED BY

THE COUNTESS OF ABERDEEN

VOLUME I.

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CONTENTS

WOMEN'S NATIONAL HEALTH ASSOCIATION OF IRELAND.

TUBERCULOSIS IN IRELAND IN 1905.

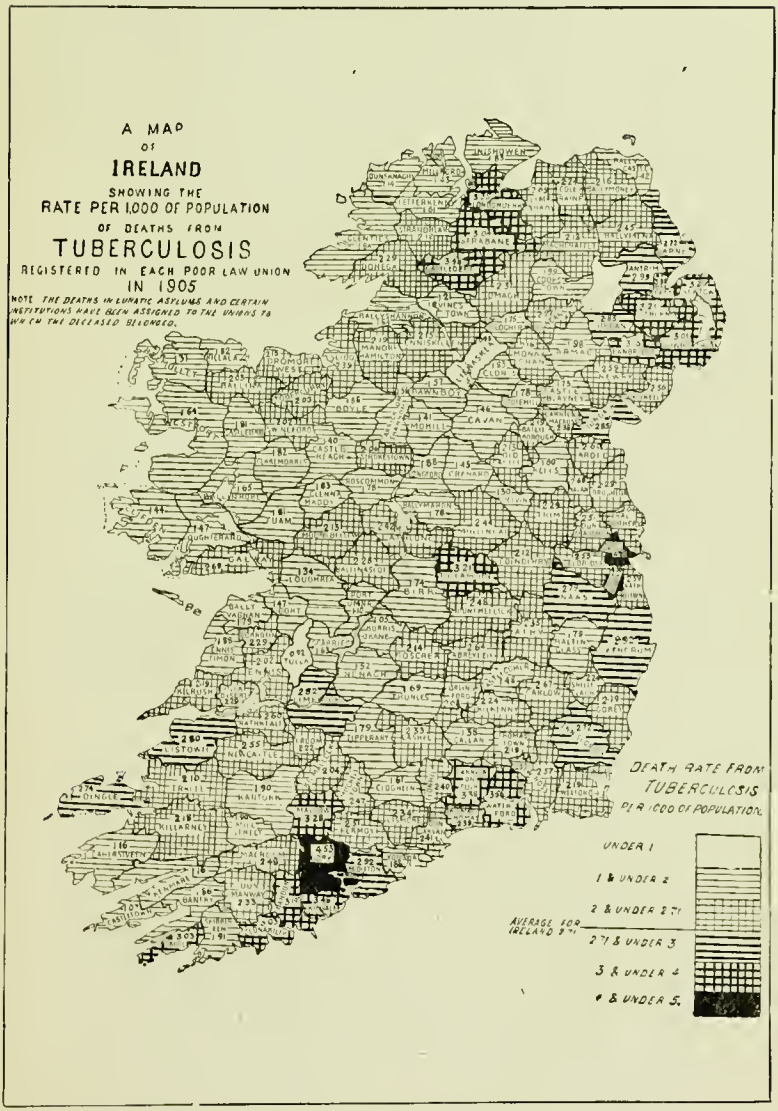

DIAGRAM NO. 1.

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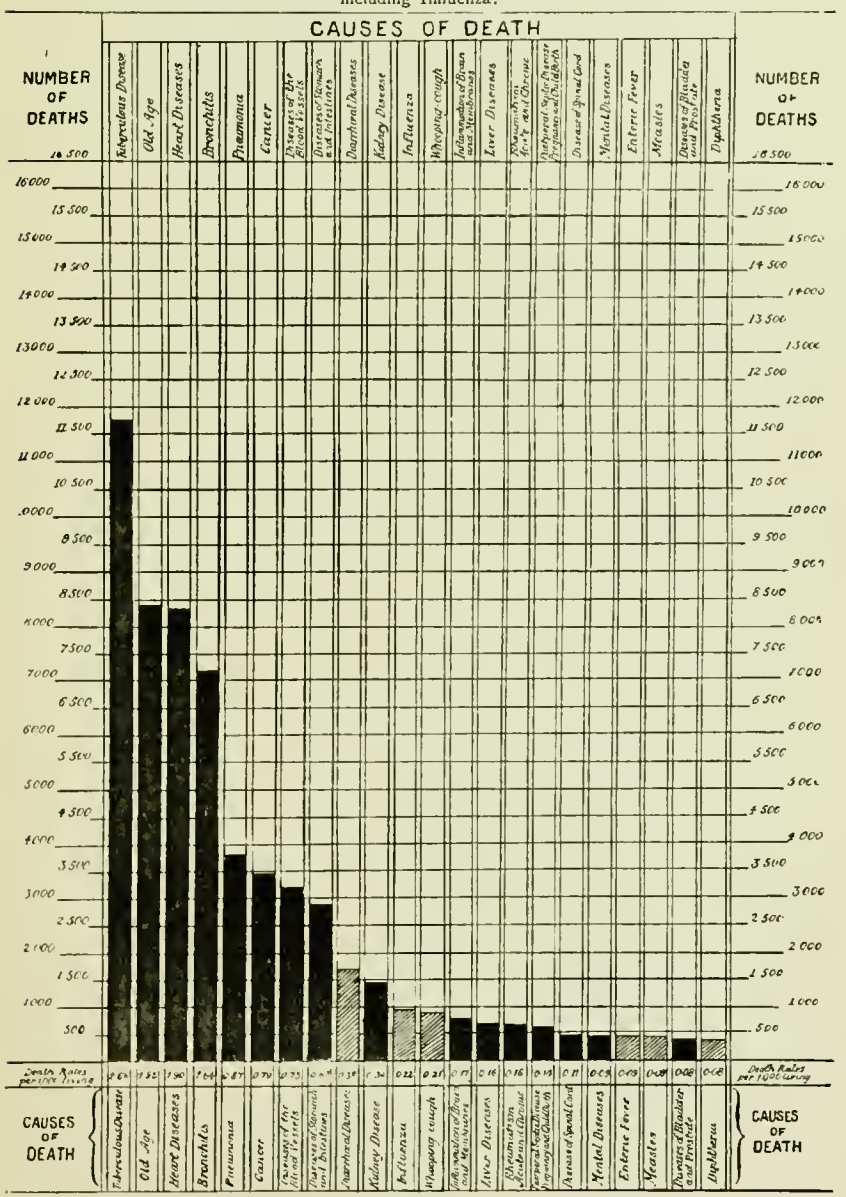
WOMEN'S NATIONAL HEALTH ASSOCIATION OF IRELAND.

DIAGRAM No. 2—showing the mortality from twenty-two of the principal causes of Death in Ireland in the year 1906, which exhibits the enormous Death-rate from Tuberculosis, as compared with the Death-rates from the other Principal causes of Death.

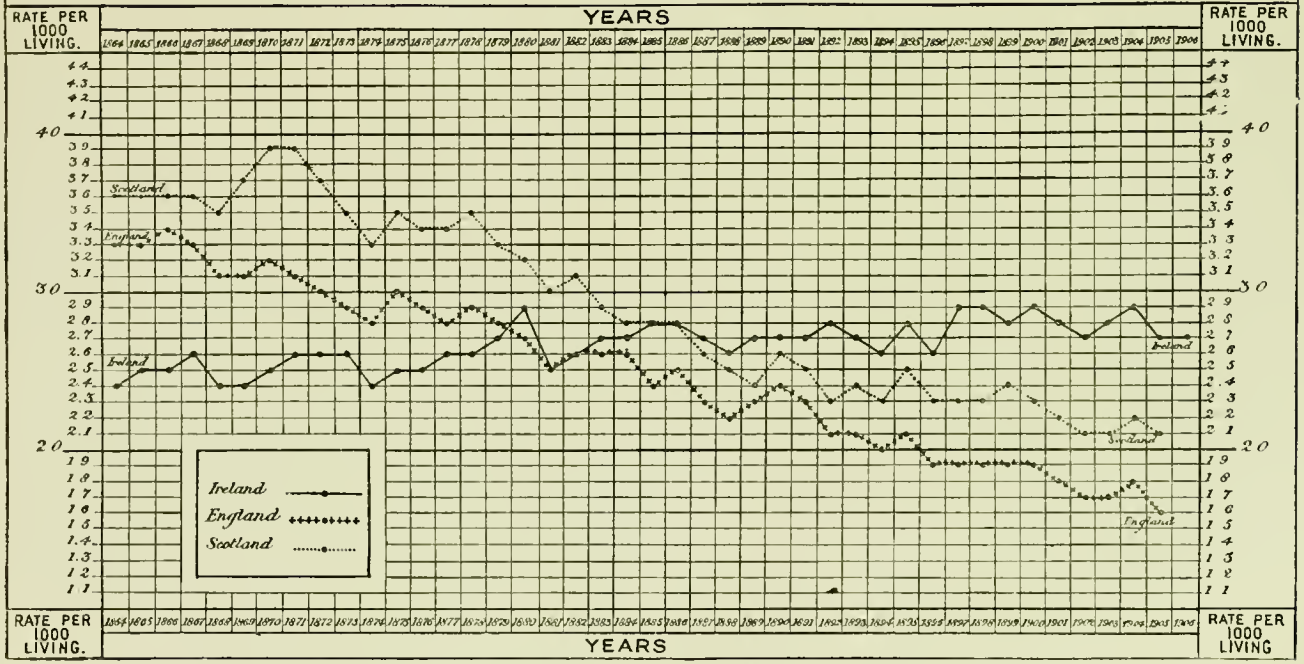
N.B.—The Deaths from Tuberculosis far exceed the total Deaths from the Principal Epidemic Diseases including Influenza.



[Reproduced from the Forty-third Annual Report of the Registrar-General for Ireland, by permission of the Controller of His Majesty's Stationery Office.]

TUBERCULOSIS.

DIAGRAM No. 3.—Showing the Death-Rate in Ireland, as compared with England and Scotland, during each of the forty-three years 1864-1906.



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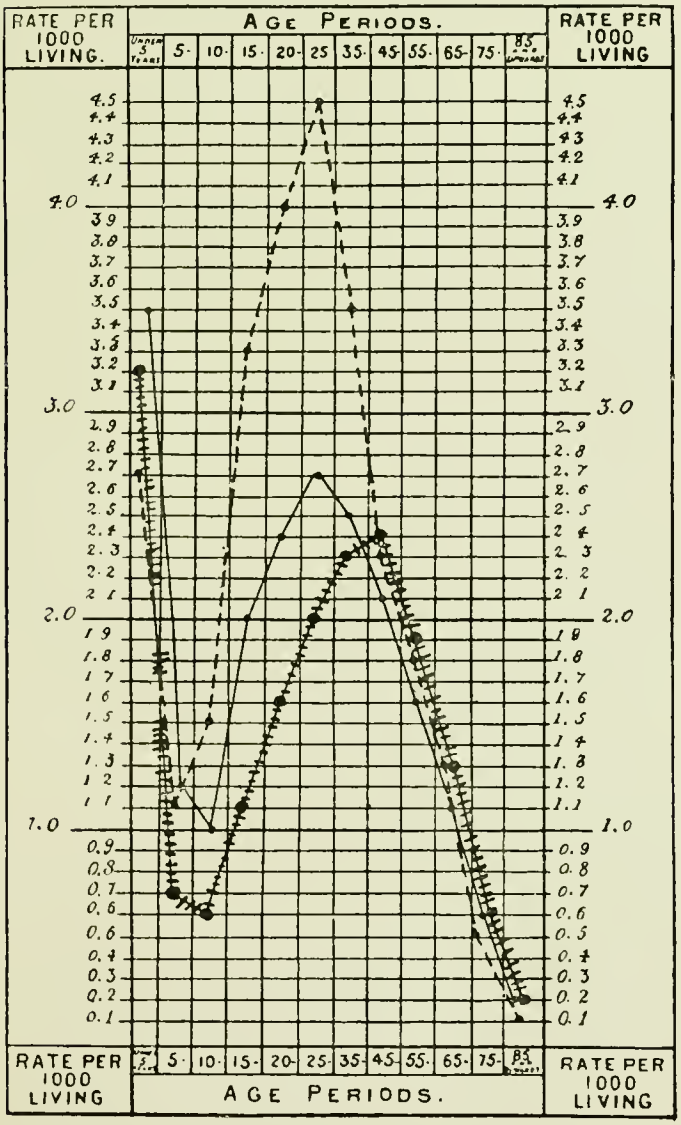
WOMEN'S NATIONAL HEALTH ASSOCIATION OF IRELAND.

DIAGRAM No 4 –Showing the Proportion of Deaths from Tuberculosis at each age period to the number per 1,000 living at those ages in Ireland, as compared with England and Wales and Scotland in the Year 1903.



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PREFACE

When the Women's National Health Association of Ireland was formed in 1907 it was clear that one of the first and foremost duties of that Association would be to take part in the fight against the appalling ravages of tuberculosis in Ireland.

On inquiring what was being done in other countries with a view to educating the people regarding the origin and causes of the disease, and also concerning means for its prevention and cure, is was ascertained that an itinerant Tuberculosis Exhibition had been found of great value both in the United States of America, in Germany, and elsewhere.

It was resolved, therefore, to form a special committee of doctors and other ladies and gentlemen having experience on the subject, with a view to organising such an Exhibition, and at the same time to invite the Medical Societies, the Urban and Rural District Councils, and the societies which were already working against tuberculosis in one way or another to form a Consultative Committee.

The Exhibition thus formed was opened in the Home Industries Section of the International Exhibition in Dublin on October 12th, 1907, by the Lord Lieutenant, and remained open till the close of the International Exhibition, on November 7th.

From the outset the public interest manifested in the Exhibition fully justified its initiation. Crowds of visitors attended every day, listening to the explanations given by the demonstrators with great attention.

The lectures delivered every evening in the Village Hall always attracted crowded audiences, many failing to gain admittance.

At an important and interesting meeting of the Consultative Committee, held just before the opening of the Exhibition, the following resolution was moved by His Grace the Most Reverend Dr. Healy, Archbishop of Tuam, in a most earnest and sympathetic speech, and seconded in a similar manner by Lord Monteagle :—

> "That the Tuberculosis Exhibition is worthy of the close attention and of the personal attention of all connected with the administration of the Public Health Acts in Ireland."

That resolution has not been a mere empty form of words, for from all parts of the country invitations have poured in for a visit of the Tuberculosis Exhibition.

It was, therefore, found necessary to duplicate the Exhibition, thus providing for a northern and a southern circuit.

Up to the time of going to press visits have either been already paid or are promised to the following districts :—

Athy,	Drogheda,	Mullingar,
Arklow,	Dundalk,	New Ross,
Armagh,	Enniscorthy,	Naas,
Bantry,	Enniskillen,	Newry,
Birr,	Fermoy,	Newtownards,
Belfast,	Galway,	Navan,
Banbridge,	Kilkenny,	Omagh,
Ballymena,	Killarney,	Portadown,
Ballymoney,	Kenmare,	Skibbereen,
Ballinrobe,	Kinsale,	Strabane,
Carlow,	Kells,	Sligo,
Cork,	Limerick,	Thurles,
Clonmel,	Listowel,	Tralee,
Clonakilty,	Longford,	Trim,
Cookstown,	Lisburn,	Wexford,
Clones,	Lurgan,	Waterford,
Dunmanway,	Londonderry,	Wicklow,

whilst negotiations are being carried on regarding visits to many other places.

At each of the places named most representative Committees have been formed for the local management of the Exhibition, including the medical men, the clergy of all denominations, and the members of the Urban and Rural District Councils and Boards of Guardians. In many cases the Urban Councils have themselves taken the initiative and carried through the Exhibition. In other cases general Committees have been formed, or the local branch of the Women's National Health Association has made the necessary arrangements.

We are deeply indebted to the medical men all over the country for the initiative they have taken, and for the great amount of time and trouble they have given to making the visits of the Exhibition effective, and the personal advice so strongly urged by the clergy of all denominations on their respective flocks has created a

deep impression, and has brought crowds of visitors from all sections.

The lectures which have been given everywhere has been an outstanding feature of the enterprise, and whilst speaking of these allusion must also be made to a special effort initiated by the Gaelic League now being carried on in the West of Ireland by Dr. Seamus O'Beirne. This gentleman, who is dispensary doctor at Leenane and district, has been set free from his regular duties for some months by special arrangement in order that he may lecture in Irish in certain Irish-speaking districts. A committee was formed to sustain his efforts, on which the Women's National Health Association of Ireland have a representative in the person of Dr. Michael F. Cox. They have been glad to be able to co-operate also by furnishing some of the Registrar-General's valuable diagrams in Gaelic; also pathological specimens kindly contributed by Professor McWeeney and Professor Mettam—members of our Committee—and coloured diagrams. We are rejoiced to hear most satisfactory reports regarding the progress of this movement.

It may also be mentioned that another project before us is to equip a tuberculosis van to proceed to out-of-the-way districts, where no hall is available. The van would take a number of exhibits similar to those shown at the Exhibition, and would be accompanied by lectures illustrated by limelight lantern slides.

It was a great gratification to the Central Tuberculosis Exhibition Committee that so distinguished a lecturer as Dr. William Osler, Regius Professor of Medicine at Oxford, should have consented to open the course of lectures in Dublin, and their best thanks are due to all the gentlemen who gave time and labour so ungrudgingly to preparing lectures so full of enlightenment and instruction, and at the same time cast in a form which rendered them so instructive to popular audiences.

The Managing Committee and the Women's National Health Association feel that the re-printing of these lectures in a permanent form will furnish a most efficient armoury to the many workers in all parts of Ireland who are taking part in the crusade organised against tuberculosis in Ireland. They, therefore, acknowledge very gratefully the financial aid given to them by the Department of Agriculture and Technical Instruction, through its Vice-President, Mr. T. W. Russell, which enables

them to publish this and two small companion volumes. They trust that all workers for the public health will provide themselves with these books, and that they will have them placed in the public libraries.

The account of the deputation which waited upon His Excellency the Lord Lieutenant, the Chief Secretary, and the Vice-President of the Department of Agriculture and Technical Instruction, on the 29th November, 1907, should be specially noted.

The unanimity with which the four points urged on the Government were supported by the influential organisations composing the deputation, and the sympathetic answers given, gives great reason to hope that the legislation desired may be speedily obtained.

Meanwhile, the branches of the Women's Health Association which have been formed all over the country are striving to keep the practical lessons of the Exhibition before the public, and we hear of a marked increase of open windows everywhere, and in many places new zeal in various sanitary matters. Also in several instances farmers and dairymen are applying the tuberculin test to their cows. In a number of districts where the Exhibition has visited a movement for starting nurses for visiting consumptive patients in their own homes has been initiated, as also various efforts for starting cottage sanatoria or inexpensive annexes in connection with existing infirmaries or hospitals.

With this hope in view, and with all classes in Ireland awakened to a determination to take their part in suppressing the insidious foe who has been too long allowed to claim his yearly tribute of thousands and thousands of bright young lives, our workers may well take heart. Armed with energy, courage, perseverance, and confidence, a united Ireland goes forth to victory.

ISHBEL ABERDEEN,

President of Women's National Health Association of Ireland.

THE OPENING OF THE TUBERCULOSIS EXHIBITION IN DUBLIN

HER EXCELLENCY THE COUNTESS OF ABERDEEN in the Chair.

ON Saturday, October 12th, 1907, the proceedings connected with the opening ceremony of the Tuberculosis Exhibition took place in the Village Hall, Home Industries Section of the Irish International Exhibition. Her Excellency the Countess of Aberdeen, President of the Women's National Health Association of Ireland, supported by the members of the Managing Committee and of the Consultative Committee, formally received His Excellency the Lord Lieutenant, who was accompanied by the Right Hon. Augustine Birrell, Chief Secretary, and Mrs. Birrell. The hall was crowded with a large and representative audience.

HER EXCELLENCY said: It is my duty, on behalf of the Tuberculosis Exhibition, to ask His Excellency to formally open that Exhibition. But before doing so I would ask permission to make a short statement regarding the objects of that Exhibition, and the reasons which induced the Women's National Health Association of Ireland to organise it. We had heard that such itinerant exhibitions had been found of value in other countries, and having made inquiries into the plan and method of these exhibitions, we hoped that similar exhibitions organised here would have the same effect from an educative point of view. But what we want to do by means of this Exhibition is to make it an object-lesson, to make the people of this country learn through their eyes certain facts which have been told to us over and over again by the medical profession and by the

statistics which are yearly brought before us in the Blue Books in the Registrar-General's reports—these much-maligned Blue Books, which we all profess to have such a horror of reading, but which contain much more interesting reading than a great many books. I wish the Chief Secretary would add to his duties yet another of editing a series of popular sixpenny Blue Books, and I promise him that the Women's National Health Association would circulate them. In the meanwhile, I fear we have become hardened to those Blue Books and statistics, and to the reports which are made of those Blue Books in the papers. We have been inclined to take them as matters of course, which we could not help, or we wished that the Government would do this and that and the other thing, and we were not sufficiently alive to the fact that there was a great deal that all of us could do in the matter ourselves. The primary object of the Women's National Health Association is to reach the women of the country, and to bring these facts home to them as the guardians of the homes of the country. And now you will ask how this can be done by an exhibition. Well, you will see when you go around the different sections. In the first place you will see those splendid diagrams which the Registrar-General has prepared for us, and which, with very little explanation, can be understood by all. These should surely drive home these facts repeated, and repeated, and repeated again, as to the original number of deaths which occur every year in Ireland. Last year I think nearly 12,000 deaths out of 74,000 deaths in Ireland altogether resulted from this one disease alone—more than all the deaths resulting from infectious diseases altogether. The diagrams also show that while the disease has been checked, and the deaths from it have been decreasing steadily in England and Scotland, it has been increasing in Ireland, and that it is yearly carrying off the flower of the people—the young men and the young women—just at the ages when they would be most effective for their country's good. Those are the facts which, by means of these diagrams,

we hope will be driven home. This Exhibition is intended not for Dublin only; we hope it will go round the country, and go not only to the big towns but also to country districts to which visits can be arranged. And we are very glad that we have already received so large a number of invitations that we are really embarrassed as to how to arrange for the visits of the Exhibition. That shows the interest that is being taken in it. Everywhere we go we have doctors and other helpers who will be willing to devote themselves to the duty of taking visitors round and showing them not only these diagrams, but the other sections of the Exhibition, which will show the progress of the disease in its different stages, and how it can be prevented and cured. There is available a large amount of literature, which you will find both in the outer hall and here around the walls, and which will show the efforts that have been made in other countries—in Great Britain, in the United States, and other countries—to check and stamp out the disease, and the wonderful results which have been attained in a comparatively short time. You will also find appliances which will prevent a bad case becoming a source of infection to others, and you will find in the Village Green shelters and model sanatoria which can be put up inexpensively, and which could be obtained very quickly by the local authorities. But I must not enter into a lengthened description of our various exhibits. Very full information is given in the catalogue which will be distributed, and members of the Committee and others are also prepared to show visitors around. The course of lectures that we hope to have for next week, and the lectures which I know are to be given in different parts of Ireland, and the literature which we and other societies are trying to circulate, all these are splendid and good in their way; but we are confident that these facts can be driven home better still by individual speaking to individual, by woman speaking to woman, by mother speaking to mother. And so we appeal to the women of Ireland. We know that we shall have the

support of the men. We thank them very much indeed for coming out and supporting us as they are doing in this matter. We believe it is our duty to mother the people of Ireland. We hope that the gentlemen also won't mind being mothered by the Women's Health Association of Ireland. May I now ask your Excellency to open this Exhibition?

His Excellency said: Your Excellency, ladies and gentlemen, it is impossible to disassociate these opening proceedings from those that took place yesterday evening in the Lecture Hall of the Royal Dublin Society. Nor do I think it is desirable that these proceedings should be dissassociated from that important preliminary to what we are undertaking here at present, because last night we had a trumpet call—a call calculated not only to awaken, to stimulate, and inspire, but also to lead and direct. That remarkable deliverance yesterday evening, and also the discussion which took place a short time ago in this hall, illustrated not only the importance, but the many-sided character of the movement in which we are engaged. That, of course, is a necessary characteristic of such a movement. It is many-sided, and it is far-reaching in its character; and that implies that the path will not always be easy and plain. An illustration of the many-sided character of the movement occurs to me, and that is in regard to the importance of improving the sanitary condition and the conveniences of the homes of many of the people. It is encouraging to remember that this matter is being attended to. For instance, the Labourers' Dwellings Act, passed about twenty years ago by Mr. Gladstone's Administration, resulted in about 20,000 cottages being erected, and, as you know, quite recently, under the present Administration, an Act has been passed for a similar purpose, and already no less than between 50,000 and 60,000 applications have been made for new cottages. That shows that the people for whom these new cottages were designed are not otherwise than alive to the importance of the matter. And of course this affords a great opportunity

for local authorities to grapple with an important part of this great problem of dealing with the tuberculosis plague. I trust that this cottage-building will go on without interruption, and I am sure there is every disposition on the part of the Government that that should be secured. I might allude to other aspects of the matter indicating this many-sided character—technical schools, and so on—but I shall not dwell upon that. I wish to say that the message to the country implied by the event of to-day, and of all that is associated with it, is one of hope and cheer—hope that this dark shadow is about to be removed; cheer for those who are afflicted with the disease, who are a cause of suffering to themselves, and still more to others whose welfare is more to them than their own lives—cheer, because there has been shed upon the prospect this ray of light which we hope will brighten more and more into the sunshine of effective remedy and cure. I have now, with great satisfaction and pleasure, to announce a message which I have received on behalf of His Majesty the King. We all know that amongst the subjects which interest King Edward one to which His Majesty has given special attention is that of dealing with consumption. Now, this is the message I have received:—

> "I am commanded by the King to express his good wishes for the success of the Tuberculosis Exhibition—the first of the kind ever held in Great Britain and Ireland—on the occasion of its being opened by you to-day. His Majesty is greatly interested in the problem of checking the progress of this disease, and he trusts that the Exhibition may be the means of attracting the attention of the public to the terrible ravages caused by this scourge and to the efforts which are now being made to arrest its progress.—KNOLLYS."

So I think this inauguration of the Tuberculosis Exhibition is one of the most auspicious kind. I cannot conclude without offering a tribute of deep appreciation regarding the efforts which have been made, and which

have resulted in this Exhibition which we are about to open, and which is so full of significance to the interests of the public. It is a very great pleasure to me to take any share in this movement. I cannot help thinking that there is no function in which the Lord Lieutenant could more properly take part. And personally I can say that I have never taken part in any function in which my sympathy is more thoroughly engaged. Although I now declare the Exhibition open we are not going to adjourn immediately. We have the great satisfaction of having some distinguished friends here, whom we will ask to address the meeting. I have great pleasure in asking the Chief Secretary, Mr. Birrell, to address you.

Mr. Birrell, M.P., Chief Secretary for Ireland, said: This Exhibition seeks, as her Excellency has so well pointed out, to bring home to the people's minds, to the fathers and mothers of Ireland, the facts and statistics connected with this terrible plague, and as we all of us learn far more through the eye than through any other channel of intelligence, I am satisfied this Exhibition—particularly if it perambulates the country, as I hope it will—will, wherever it goes, excite interest, and be, through that channel of the eye, an enormous means of instructing the people as to what this disease is. In all matters relating to disease those of us who are not doctors are only too disposed to believe that they are Divine ordinances, and that we have to submit to them. I can remember well a half century ago, when I was a boy in Liverpool, that great city, that typhoid fever was considered as much a Divine institution as the prison, or the workhouse, or the gallows, or as her Majesty's Judges of Assize, or any other of those things. We submitted to it—a most terrible plague it was. There was scarcely a family that it did not enter to claim a victim. I never shall forget a brother of my own, nineteen years of age, who, had he lived, would certainly have been by far the most distinguished member of his family, carried away in the prime of life by the scourge; and although our grief was intense it hardly occurred to

us that the thing had no right to exist; that it should not have existed; that so far from its being an act of God or the will of God that such a scourge should not only visit the city, but perpetually abide in the city, that it was due to laxity, to apathy, and indifference on the part of the community that it should have been there to the extent that it was. Fifty years have gone by. Typhoid fever now plays no considerable part in the death-rate; it has practically disappeared; it has been conquered by scientific zeal and by public attention to the laws regulating health and hygiene. Now it is pointed out to us that this terrible scourge of consumption—tubercular consumption—can in the same way be treated. Doctors have found out by their microscopic investigations how it is developed, what it comes from, and to some extent how it is spread, and have hit upon various expedients for curing this disease. And we all of us know—at least I have known in my own small circle of friends—several young men who have undoubtedly been cured of this disease by modern expedients. We only want to bring home these things to the people's minds. The magnificent lecture delivered last night by the distinguished professor who is visiting Dublin will, I hope, be circulated widely and read by all. It is a subject which does not require scientific training. There is not much of the jargon of the profession about it. It comes home to all hearts; we all of us have known persons who have perished by this disease. We see those statistics which bring home to our minds what a scourge it is. Now we have doctors coming forward to tell us what it is, how it is caused, and how it is spread, and all they ask of the people of Ireland to do is to labour, all of them to the very best of their ability, to put it down. I am glad to see how general the absence of spitting has become in all tramways, railways, and other places. That is the natural result of bringing home to the people's minds the danger that lies in a habit which, at all events, was consecrated by long usage. If the people had pointed out to them the dangerous consequences

that result, and if they would only examine the microscopic specimens that this Exhibition will put before them, they will be warned, and I am sure they would join in a course of behaviour such as will render that source of contamination and disease dried up. I have, therefore, the greatest possible pleasure in being here to-day, and it is a congratulation that we meet here on this occasion. As the King has said, this is the first Exhibition of its kind that has ever been held in Great Britain or Ireland. I have only paid a very short visit to the Exhibition, but it was under skilled guidance, and I saw quite enough in the course of ten minutes to satisfy me that this is an Exhibition that will excite genuine interest wherever it goes, and be in itself a travelling professor of truth, and will enable the people of Ireland not only to realise, as they have already done, the true extent of this scourge, but to take active measures against it. I think that whatever our differences of opinion may be as to the construction of sanatoria or other matters we all feel that it is our bounden duty to take an active part in warring against this disease. We are under accomplished leadership, we have competent men at our head, and this Exhibition will be the first step in a successful warfare against a terrible disease.

Professor Osler said: Your Excellencies, ladies and gentlemen, I think it is peculiarly fitting that an Exhibition of this sort should, for the first time in Great Britain and Ireland, be opened in Dublin. It may not be known to many, or to any of you, that it was in this city that a strong public health movement was first inaugurated by that remarkable man, Sir William Petty, whose studies on the public health of Dublin I commend to all of you who are interested in the question or in antiquarian research. I was particularly pleased to see in this little leaflet the motto of his friend, and I think possibly his instructor in public health matters, John Locke. There is a manuscript book of Locke's in the Bedeleian Library which shows that he was interested in the public health of Dublin, and there are letters from

Sir Patrick Dun and the Molyneuxes, and from other friends, relating to the investigations which Dun and Petty had instituted in this city as far back as 1683 dealing with the very same issue which we have been discussing here to-day—namely, the proper notification of disease. Your Excellencies, much has been spoken here with reference to Government help. Now, this is not a Government battle; it is a people's battle. You cannot expect the Government to do everything. Your work here is work that must be done by yourselves, and I would urge particularly that wealthy people should be asked to contribute, and to contribute largely, to the Women's National Health Association with a view to enable this Exhibition to visit many districts, and to enable literature to be spread broadcast in connection with a popular educational movement. The working people, too, should be made to realise through their associations that this is a battle in which they are interested most deeply. Those of you who have read Professor McWeeney's report know how much has been done in that respect in Germany—in getting the working people themselves to take part in the movement. After all, the most serious obstacle to the cure of the disease about which we have met here to-day is the presence of another one—that referred to by the Chief Secretary—a disease until the extirpation of which has been successfully accomplished, tuberculosis will exist, and that is apathy—public apathy. This Exhibition will have one important result—it will do more to cure that disease than anything else that possibly could have been devised. And it is particularly in this connection that we wish this work God-speed, feeling convinced that the greatest possible good will come from the influence this Exhibition will have in rousing the whole country. Lady Aberdeen has reminded me to say something about the climate. I know this is a very sensitive subject. People say sometimes that on this side of the Atlantic we have only weather and no climate. But peripatetic as I have been, living in many places, I have always

regarded climate and weather as two of the non-essentials, and I think the people who take that view of both climate and weather are the only happy ones in life. But there is no reason whatever for you here in Ireland to growl about the weather. It is quite good enough for you. And it is a first-rate climate for consumptives. It is not a bit more moist in any part of Ireland than it is in that tail-end of England—Cornwall. Yet in no climate do consumptives do better. I do not know where this idea that Ireland is a bad climate for consumptives comes from; certainly I do not think it comes from the profession. It is one of those fads that possibly women have encouraged. But at any rate it is not at all the case that a damp climate is bad for consumptives. All over the world consumptives do well in moist climates. There is, indeed, another view about sunshine. Surgeon Woodroff, of the United States Army, has written what many will regard as a very dangerous book, in which he has instituted a crusade against sunshine. He claims that the climates with the maximum degree of sunshine have the maximum death-rate from tuberculosis. I asked him, in reply to a letter the other day, had he considered Ireland in that connection, and I have not yet got his reply. Sunshine is not an essential for the cure of the disease. The things that are essential are fresh air, good food, good houses, and hope.

Her Excellency having announced the lectures which it had been arranged should be delivered during the coming week, continued—I was reminded by Dr. Osler that we might hope to look for help to every individual present, and to wealthy persons who are interested in the welfare of Ireland. Some have asked about the expenses of the Exhibition. We hope that they will be defrayed, or at any rate, largely defrayed, by a donation of £100 given to us by Mr. Collier, an Irishman who lives in New York, but who comes back here every winter. He gave this sum to the Women's National Health Association for its tuberculosis work. On behalf of the

Women's National Health Association I heartily thank him, and I wish to close this meeting by tendering the hearty thanks of the Women's National Health Association and the Tuberculosis Committee to His Excellency, to the Chief Secretary, and to Dr. Osler for the great help they have given us to-day.

His Excellency said: My concluding observation is this—that this movement furnishes a splendid and an unequalled opportunity for co-operation on the part of all Irish people and of all lovers of Ireland who may have enormous divergences of opinion upon other subjects.

WHAT THE PUBLIC CAN DO IN THE FIGHT AGAINST TUBERCULOSIS

By WILLIAM OSLER, M.D., F.R.S.,
Regius Professor of Medicine in the University of Oxford.

His Excellency the Lord Lieutenant of Ireland in the Chair.

That was a very happy, I would almost say a shrewd, remark of Tennyson when he said that "knowledge grows but wisdom lingers." After all, the greatest difficulty in life is to make knowledge effective, to convert it into practical wisdom. We often confuse the two, and we think they are identical. But it was another poet—Cowper—who said that far from being one they often have no connection whatever. Now, wisdom is simply knowledge made efficient; and you are asked to-night to *join in a campaign of efficiency*, a campaign of education, and this of a sort in which all may join. Mr. Birrell and Mr. Long, Mr. O'Brien and Mr. Redmond, the Archbishop and the Provost all may join in a campaign against one of the most dreaded foes that the race has ever had. There is a grisly troop of infections that we all know only too well called the fevers. Two of the greatest illustrations of human efficiency may be said to be in connection with these fevers, for if you look over the record of human achievement there are not more than four or five which can be placed in the same category with antisepsis or asepsis and preventive medicine—the *two most important victories of science* in the last half century. All know what Pasteur and Lister have done in introducing what we call *asepsis*, and how it has revolutionised the practice of our hospitals. Of

the other victory—that of preventive medicine—you know here in Ireland as well as anywhere, for you have gained one of the great victories in the abolition of that most terrible scourge, typhus fever. Throughout the middle of the last century, indeed, until a decade or two ago, typhus fever ravaged this country. In the decade from 1871 to 1880 there were 7,495 deaths from this disease. In 1905 there were 68. Of this victory many of you are not aware. You do not remember it, but perhaps your fathers have told of the terrible days of 1847, when the awful plague of typhus almost decimated the country. Speaking of it I would like here to bear testimony to the brave men who fought this disease for so many years for the Irish people—the physicians of Ireland. If there is one record in our profession of which we may be proud it is that of the physicians in their battle with typhus fever. Let me illustrate it by one fact. In 1847—the year of the great epidemic—*one-fifteenth of the entire medical community of Ireland died*. According to Stokes' investigation on causes of mortality among 743 physicians in Ireland the deaths of 331 were caused by typhus fever—nearly 45 per cent. Not only has this disease disappeared, but enteric fever is gradually going, and within the next twenty-five years a case of it will be just as rare as is now one of typhus. And in other directions this victory of human efficiency may be illustrated. I will mention but one disease, the greatest and most terrible, perhaps, that the white man has had to contend with—namely, malaria. The victory over it is to-day practically complete, and we may say that the solution of the white man's position in the tropics has been solved by the scientific investigations of Laveran and Ross and of others. *One great scourge remains*—"the white plague," as Oliver Wendell Holmes calls it—a disease which kills, it is estimated, at least a million annually—the terrible malady tuberculosis, which we are met to consider this evening. This, too, is a disease upon which we may entertain a full measure of optimism : just as full, indeed, as about

enteric fever. In the past twenty-five years there has been an extraordinary increase in our knowledge relating to it. We know *eight* things about the disease thoroughly.

In the first place, we know the germ—the cause. We can pick it out as easily as you pick out a beech-nut from other nuts. Give, for example, Professor McWeeney a group of these germs and he will pick out that of tuberculosis as easily as a farmer will sort oats from wheat.

Secondly, we know whence it comes—its two great sources, the sputum of affected individuals, of persons affected with consumption, and, secondly, from the milk of tuberculous cows.

Thirdly, we know how it gets into the body. It is taken in through the breath and swallowed with the food. In these two ways the germ enters.

Fourthly, we know what happens to the germ when it enters the body. Like seed sown in any other way, it illustrates again the old story—the parable of the sower. Some of the seed, you remember, fell by the wayside, and the birds of the air picked it up. Fortunately, a great many of the germs of tuberculosis fall by the wayside and never get into us. Some of the seed falls on stony ground, and, as you remember in the parable, it does not flourish because of the lack of depth of earth. And just so, into a certain number of us these seeds of tuberculosis enter; but fortunately we are of rocky constitutions, and they do not develop. And some of the seed fell among thorns, and the thorns sprang up and choked it. Now, it is a very fortunate thing for some of us that we have a thorny constitution, and when the germs get into us there may be a growth for a short time, and they may thrive and develop, but in a little while thorns spring up. In other words, the constitutional resistance is so great that the germs are killed, and the patient is cured. But, alas! too much, indeed, falls on good ground, and you know then what happens. It brings forth a hundredfold, and tuberculosis in some

form results. The chart which I will show you in a few minutes indicates how often it falls on good ground in this country.

Fifthly, we know how the good ground is prepared. It is well to remember that the seed is not everything—the seed is everywhere, we inhale it every day—it is the soil that is the important thing. Now, how do we prepare the ground for the seed that it may grow to tuberculosis? There are the three "bads"—bad food, leading to ill-nutrition, which is the great preparation of the ground; bad air in wretched habitations and miserable cabins; and bad drink, alcohol. Those are the three "Bs" for you to remember with reference to the preparation of the soil for consumption. And just as a farmer has not his crop of grain unless he cultivates the ground properly and prepares it and fertilises it, so the great majority do not get tuberculosis if they avoid these three "Bs" and do not cultivate a body-soil proper for its growth.

Sixthly, we have learned how to recognise the disease. Upon this point I need not enlarge further than to say that we now get the cases earlier.

Seventhly, we have learned how successfully to prevent it. And it seems so easy—first by the destruction of the germ, and secondly by making the soil unsuitable.

Then, *eighthly, we have learned how to cure the disease.* There were many doctors long before our day who recognised how tuberculosis was to be cured, but it takes a good while to get wisdom into the profession—even longer sometimes than to get it into the public. It took us a good while to learn how to cure consumption. But we know how to cure it to-day *if only we can get the cases early.*

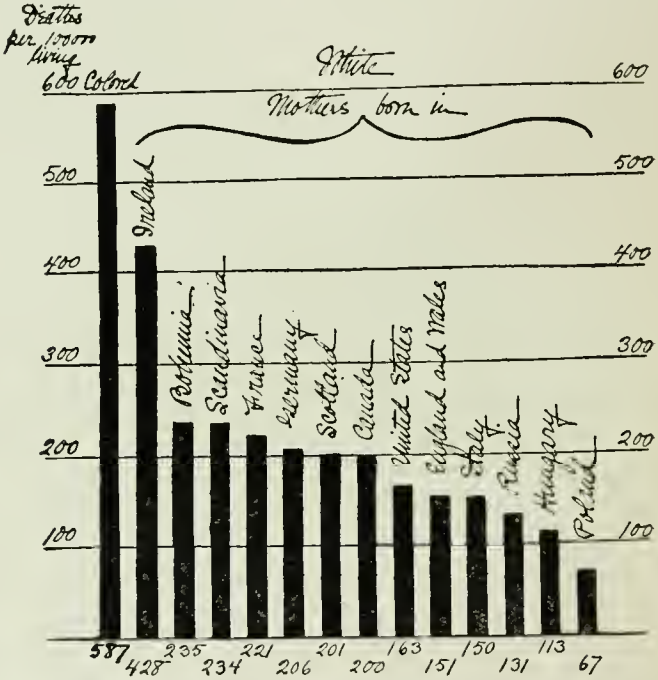
And, *lastly,* for your great consolation, *we know that the disease is not hereditary, and for this let us be thankful.*

Now, what is the *condition of Ireland to-day with reference to tuberculosis?* I am sorry, your Excellen-

cies, ladies, and gentlemen, to have to say that the chart before you, taken from Dr. Matheson's report, shows an appalling record. No other words can be used properly to designate it. You see here (see Diagram No. 2*) that tall pillar in black, which indicates that there was almost 12,000 deaths from tuberculosis in 1906—one-sixth of the entire number of deaths. And you see how it out-tops the deaths from natural causes, from old age; and see, even heart disease and the acute infections, enteric fever, whooping-cough, measles, influenza, and others seem scarcely to count in comparison with that tall, dark, grim column which stands confronting you. If this meant that there were nearly 12,000 *cases* of tuberculosis it would be bad enough, but it means 120,000 *cases* in Ireland in 1906, for you have to estimate at least ten times as many cases as deaths. The second chart, also made by Dr. Matheson, is almost as discouraging. In fact, in a way it is, perhaps, more discouraging. Here you see indicated on the chart the three lines, Ireland, England, and Scotland, indicating the percentage rate per thousand living of cases of tuberculosis since 1864. Look where Scotland was in those days (see Diagram No. 3).* Look where she is now. Look where England was—3.4, far above Ireland. See where she is to-day—1.8. Look where Ireland was in 1864—far below Scotland and England. Alas! alas! look where she is to-day; if anything a point or two higher than they were. Now, of course, there are definite causes for this increase. One most important cause is the drainage from Ireland, by emigration, of the healthy. In all probability this is the most important single cause for the remarkable increase of tuberculosis. But Diagram No. 4,* also taken from Dr. Matheson, is equally sad, because it represents a feature in the disease that is, I was going to say, the saddest of all. But there is no "saddest" in tuberculosis. In one aspect it is a uniformly dark picture, for it affects the world. You see the line showing how the comparatively young and the

* Diagrams—see pages xi, xiii and xv.

healthy are attacked in a very much larger proportion of cases than in England or in Scotland. In the ages between twenty and twenty-five the incidence seems very much higher in Ireland than in England or Scotland. Now not only is the disease very prevalent in this country, but I am sorry to say that in certain parts of America—particularly in New York—the Irish suffer



much more from tuberculosis than any other nationality. I do not think this is the case everywhere in the United States and in Canada. I think, for instance, that in Montreal tuberculosis is not so rife amongst the Irish population (and you know there is a large Irish population there) as amongst the French Canadians, though I have no definite figures. But you see in these figures from New York how very high, in comparison with the other European nationalities, the incidence of tubercu-

losis is amongst those whose mothers were born in Ireland. Now, ladies and gentlemen, I would be glad to stop here, just to leave a last impression on your minds—the impression made by these diagrams, as it is one which should not be obliterated by anything else I may say.

But a last and most important thing is—*What can you do to be saved?* Three things. In the first place, organise over the whole country a campaign of education such as that in which you are at present engaged. Through the Press, the pulpit, by private effort, by lectures and pamphlets—in every way, *a campaign of incessant, unending activity must be waged.* You have the machinery for it very well arranged. In this blue book—this report of the Local Government Board just issued—Dr. Stafford has provided a complete armoury for the battle. I would like you particularly to read the section at page 202, No. 2 Circular. It could very well be in every newspaper to-morrow morning in place of the report of this meeting. It should go through Ireland as a campaign document to stir up the people, and I would like to see it in every newspaper in the country within a week. It is splendid. Nothing could be better. Then, for the doctors and for the more intelligent among the laity, there is Dr. McWeeney's report. It is not every lay man who would dare to tackle it. It is no reflection on Dr. McWeeney when I say that it needs intelligence to tackle it. But it is a report full of all sorts of valuable information, particularly with reference to the solution of the problems of tuberculosis amongst the poor. There are numerous other points in the report to which I could allude. I will speak of one later on—the opinion of the Medical Department of the Local Government Board as to the best measures which ought to be taken. I hope, too, that you have all read Surgeon Tobin's address the other day, which I am sure will do much good. The Exhibition which is to be open to-morrow, in which Her Excellency has taken so great an interest, will stir up the people as it travels through the country. It is an object-lesson that will be of

immense service. In all localities, in small towns, in the counties organise, as has already been done in many places, tuberculosis leagues, or branches of the Women's National Health Association. Only in this way, through efficient local organisation, can proper measures be carried out.

The second great thing is *the re-organisation of the Public Health Service*. As I know nothing about the Public Health Service in Ireland that is a pretty rash statement to make. But let me indicate certain essential measures. In the first place, there must be compulsory notification. This is a rather ticklish point, as it is not every health officer who believes in it. I believe in it thoroughly. The only possible way, ladies and gentlemen, that you can get at a disease is to know where it is; and you cannot know this unless you have somewhere in your cities, somewhere in your counties, definite statements as to where the plague is. There need be no trouble, no personal inconvenience, no discomfort whatever, if carried out in a proper way. It has been done elsewhere without hardship to the public, and there is no reason whatever why it should not be done here. There should be full control of the cases, so far as all measures for disinfection, and particularly the disinfection of the houses of the poor after the death of a consumptive patient. All this should be carried out systematically as a matter of routine by the health officers; and, most important of all, since tuberculosis is a house disease, is an absolute control on the part of the health authorities over the hovels in which the people live. If there is one thing more than another that makes me boil with indignation when I visit this country—and others, too!—it is to see the shocking hovels in which some good Christian people live. It makes one furious to think that our fellow-creatures have to live in such wretched dens. You can only get this controlled by legal enactments, but it is one of the most important of all measures in connection with this crusade against the disease.

Then the third great thing is the *proper provision for*

the care and the cure of patients. In the first place, hospital accommodation for advanced cases. I do not mean necessarily separate hospitals, but a ward or two wards in the general hospitals to which advanced cases may be admitted, and in which they may be cared for—in which they may be looked after until their death. It has been arranged in many countries most satisfactorily, and there is no reason why it should not be done here. If possible, it is better to have a separate hospital, as has been done in Philadelphia. One of the most valuable benefactions recently made is that of Mr. Henry Phipps, who gave £200,000 to Philadelphia, not for early cases, but to found an hospital and an institute for the advanced cases. Remember the care of these very cases is all-important, as through them chiefly the disease is spread. The provision of sanatoria for early cases is a hard question, into which I should like to go fully had I time. But this I will say, that if you go in extensively for the building of sanatoria in Ireland you must build cheap ones. *You can build a good sanatorium at a very reasonable rate.* In fact, the one that you can afford to burn down after the fifth or sixth year is perhaps the best. This is one of the most difficult of all the problems in tuberculosis, particularly in our larger cities. I know that I echo the sentiments of all doctors present when I say that our hearts often bled for these poor chaps, perhaps fine, athletic young fellows, early stricken with the disease. They come to the dispensary, or we see them in the hospital, and what have we to do for them? Give them a prescription! That is all! But what we should be able to do is to write on a slip of paper and say, "John Smith is in an early, curable stage of tuberculosis. Please admit him to the city sanatorium for six months, and if necessary for a further period of six months." That is the sort of prescription which we should be able to give at our dispensaries. That is what I hope we shall be able to give before many years are past. Then we need better organisation for the treatment of patients in their homes. 120,000 cases of

tuberculosis! What is to be done with them? To build sanatoria for all of them is out of the question. A large proportion of those cases in the country districts, and even in the city, may be treated successfully at home if proper measures are taken. There are certain measures which are of the greatest value. In the first place, the *dispensary for tuberculosis*—a place to which tuberculous patients may come and receive advice as to what they should do, and subsequent supervision, not necessarily by the doctor, who often is not the best person—he has not the time—but by nurses attached to the institution. These persons, though treated at their homes, if taught how to live rational lives, how to feed themselves, given food if necessary, supplied with milk, supplied with eggs, taught how to sleep out of doors, an immense amount of good may be done. It is remarkable how much may be accomplished by the systematic instruction of poor patients by the dispensary. The *district nurse is a ministering angel everywhere.* If I was not a man I would rather than anything else be a district nurse. The work that district nurses may do in connection with tuberculosis is of the greatest value. I have had experience of it now for many years. Visiting the tuberculous patients at stated times every week, watching over them, seeing that they carry out the regimen systematically and regularly, it is wonderful what good results may be obtained by guidance, by control, and by the proper education of the patient. A very interesting experiment was started by a friend of mine—Dr. Pratt, of Boston—*the tuberculous class in connection with a church.* And it is a nice sort of practical religion for any church to undertake. Dr. Pratt's first class consisted of fifteen or twenty persons, chiefly young clerks, all in the early stage of the disease, and all still at work. He met them once a week in a room off the schoolroom of the church, and there they discussed their cases with him. They were weighed every week, a careful analysis was made of their symptoms—how much they had gained or how much

they had lost. Each one took his own temperature, and brought his notebook, and it is a very remarkable record of two years' work that has been carried on. A number of these young persons, some with quite well-marked symptoms of the disease, have been completely cured without going to a sanatorium, without going away, and while continuing their work. I know of no more encouraging feature in connection with the disease than this practical *experiment,* which has been carried out so successfully. I will have the literature sent to Her Excellency, as it is a new development in connection with the treatment of the incipient cases.

One word in conclusion on a troublesome point about which we physicians have to worry a great deal, and the public still more. One often hears the statement—"All this fuss about tuberculosis is terrible for the poor victims who are made social outcasts, to their great distress and to the alarm of their families." There is no justification for this feeling. *There is no risk in close contact with tuberculosis if the patient is ordinarily careful about the sputum.* If you are a phthisophobe, and if you desire a place of safety where you can get away from the germ of the disease, go to some first-class sanatorium for tuberculosis. There are fewer germs there in the air and on the floor than in any other place in the country, and there is very little risk of catching the disease in the house of a tubercoulous patient if he takes good care of the sputum, and sees that it is properly disinfected. Finally, in this crusade there are two all-important things to be borne in mind; *there are two indispensable factors without which you cannot get on.* The first is *enthusiasm.* That you must have; but, after all, it is not hard to get up enthusiasm when you know you are fighting a winning battle. And these charts which I have shown you, illustrating the extraordinary decline of the disease in Scotland and in England—and the same is going on all over the world—indicate that the victory is with us if we will only fight. And the second essential is *perseverance.* It is not a year's work, nor is it two years' work, nor five years' work.

A decade will make a difference—probably a great difference—here in Ireland. A generation should see a remarkable reduction of mortality—50 per cent.—and your children and grandchildren will be able to point to a victory as memorable, if not so conclusive, as that which you and your fathers have won in this country against typhus and typhoid fever.

TUBERCULOSIS IN IRELAND

By SIR ROBERT MATHESON, LL.D., Registrar-General for Ireland.

HER EXCELLENCY THE COUNTESS OF ABERDEEN in the Chair.

I HAVE been invited by Her Excellency the Countess of Aberdeen to contribute a lecture on the subject of tuberculosis in Ireland to the series of lectures proposed to be given on that subject under the auspices of the Women's National Health Association of Ireland, in the Tuberculosis Exhibition organised by her in the Irish Industries' Section of the International Exhibition, and I desire to express my deep sense of the honour which Her Excellency has conferred on me in selecting me as one of the lecturers.

The question of the prevention and cure of tuberculosis has for some years occupied grave attention in all civilised States in the world.

INTERNATIONAL CONGRESSES, 1901 AND 1905

An International Congress on the subject was held in London in 1901, and a further Congress in Paris in 1905, both of which I attended in my official capacity as a delegate from the Irish Government.

The Paris Congress was particularly interesting and helpful, and the French Government spared no pains or expense to make it a really useful conference.

It was held in the Palais des Beaux Arts in the Champs Elysées, a magnificent building, eminently suited to the purpose. The Congress was opened by the late President of the French Republic, Monsieur Loubet, and in the opening ceremony delegates from many countries took part.

The Museum was a source of practical instruction. On entering was a Bureau of the Prefect of the Seine,

where many excellent notices were exhibited warning the public as to the deadly nature of the disease, and the means of preventing infection.

Further on was shown a bedroom in an hotel, ill lit and ill ventilated, and side by side with it was presented a model of an hotel bedroom, well lit and well ventilated, arranged by the Touring Club of France.

Then a model of a domestic servant's room in a Paris house was contrasted with the model of a cell in the French prison at Fresnes.

Further on there was an ideal sanatorium—a model room in the Lanboisiere Hospital.

The Museum contained also many beautiful pathological specimens, and portions of the human body and the bodies of animals affected by the disease in its various forms. There were also many statistical charts, exhibiting the status of the disease in the various countries, and models and designs of sanatoria and of sanitary appliances having special bearing on the subject.

These Congresses have undoubtedly done great service in bringing together those interested in combating the ravages of the disease in the various countries, enabling them to compare notes and discuss together the many practical problems which arise in dealing with the disease.

I cannot, perhaps, open my address this evening in a better way than by showing my audience a copy of the badge issued to delegates and members of the Paris International Congress, 1905.

The figure on the badge represents a poor victim of tuberculous disease stretching out her hand and imploring help in her desperate condition. The author of this beautiful design touched a chord of pity in every heart, and lent a pathos to all the deliberations of the Congress.

Substituting a fair Irish colleen for her unhappy French sister, we have a picture of what might be represented in many an Irish home, where the flower of youth and beauty are year by year being carried off by this awful scourge.

The august lady our gracious Vice-Reine, who has

organised this Tuberculosis Exhibition, and to whom Ireland is under so deep an obligation for her unceasing activity in promoting every good work tending to the improvement of the country and the amelioration of the condition of its inhabitants, has had the same humanitarian object before her as was before the Paris Congress—viz., how this dreadful disease, which is so fatal in Ireland, can be successfully combated.

In furtherance of this object the first step is, I think, to ascertain clearly how we stand with regard to it, and the information collected and tabulated by my Department affords a solid basis on which all administrative action must rest.

Deaths from Pulmonary Tuberculosis In Ireland, 1831-1863

Though the Registration of Deaths only came into operation in 1864, we have statistics of the deaths from pulmonary tuberculosis back as far as 1831. In the Report of the Census Commissioners for 1841 it appears that the number of deaths from consumption, or pulmonary tuberculosis, from June, 1831, to June, 1841, was 135,590. The Commissioners remark that this malady is "by far the most fatal affection to which the inhabitants of this country are subject."

According to the Census Commissioners of 1851, the number of deaths from consumption between June, 1841, and March, 1851, was 153,098. The Census Reports of 1861 record 130,739 deaths from pulmonary tuberculosis between March, 1851, and April, 1861. In the period between April, 1861, and January, 1864, when the registration of deaths commenced, it appears from the Report of the Census Commissioners of 1871 that 26,267 deaths occurred from consumption.

These figures make the appalling total of 445,694 deaths from pulmonary consumption from June, 1831, to January, 1864, and, having regard to the manner in which the information was obtained, there is no doubt that this total is considerably under the truth.

On the 1st of January, 1864, the Act for the Registration of Deaths in Ireland came into operation, that for England having been in operation since 1837, and that for Scotland since 1855.

Tuberculosis in England, Scotland, and Ireland, 1864-1906

In my Annual Report for 1906 is a chart showing the statistical history of tuberculosis in the three countries from 1864 to 1906, which is reproduced on page xiii.

From this it appears that while in 1864 Ireland stood lowest of the three, with a rate of 2.4 per 1,000 living, the rate for England being 3.3, and that for Scotland 3.6, in 1905 Ireland occupied the unhappy position of being the highest with a rate of 2.7, Scotland being next with 2.1, and England lowest with a rate of 1.6.

The attention which has been paid to sanitation in the sister countries has doubtless largely conduced to this result, and the chart, an enlarged copy of which is included in my exhibit, loudly calls for a sanitary campaign in this country with a view of reducing our death-rate from this dreadful disease.

Tuberculosis in Ireland as compared with other Countries

But it is not only with respect to the other divisions of the United Kingdom that we are in so disadvantageous a position, but Ireland occupies a lamentably high position as regards death-rate from this malady when compared with other countries. The last Annual Report of my colleague the Registrar-General for England gives an interesting table showing the death-rates from consumption in various British possessions and Foreign States.

This table, an enlargement of which is in the Exhibition, deals with pulmonary consumption only, and discloses the sad fact that in the world's records our country stands fourth highest, being only exceeded by Hungary, Austria, and Servia.

Having thus reviewed our position as compared with other States, I now come to consider in detail the status of the disease in this country.

Principal Causes of Death in Ireland, 1906

In my last Annual Report I presented a diagram showing the mortality from twenty-two of the principal causes of death in Ireland in the year 1906. (See Diagram No. 2, page xi.)

From this diagram (an enlarged copy of which will be found in the Exhibition) it appears that the mortality from tuberculous disease far exceeds that from any other causes of death. Out of a total of 74,427 deaths registered in Ireland in 1906, no less than 11,756, or 15.8 per cent., were due to this disease, which is in a great degree preventable.

But it is not only that such a large number of our fellow-countrymen and women have been carried off by this scourge, but that the mortality is greatest in those ages which ought to form the backbone of our population.

Ages of Persons who Died of Tuberculosis in 1906.

My exhibit includes a table showing by sexes and age periods the number of deaths from tuberculosis registered in Ireland in 1906, with the rate per 1,000 living at each age period. This table shows that the highest number of victims and the highest rate per 1,000 living at each age period appear in the period of life from 15 to 45; the age period 15-20 claimed 1,355 victims, or 2.91; the age period 20-25, 1,660, or 3.80; the age group 25-35, 2,821, or 4.37; and that of 35 and under 45, 1,717 persons, or 3.61 per 1,000 living at those ages.

In my Annual Report for 1905 I gave a diagram showing the proportion of deaths at each age period in

England, Scotland, and Ireland in the year 1903. An enlargement of this diagram will be found in my exhibit. A comparison of the ages of the persons who died from tuberculosis in England and Scotland with those who were carried off by that scourge in Ireland, as shown in the diagram, reveals the further fact that the mortality rate from tuberculosis to the number per 1,000 living at those ages in Ireland at the ages 10-15, 15-20, 20-25, 25-35, and 35-45, is enormously higher than it is in England or Scotland. (See Diagram No. 4, page xv.)

The explanation of this may, I think, be looked for under two causes :—

1. The emigration from the country for so many years, which has removed the able and healthy, and thus left amongst the residue an increased percentage of the enfeebled and persons less able to withstand the attacks of disease.

2. The deaths of emigrants who have contracted the disease in other countries and have returned to die here. These persons, some of whom were not numerated in the population, but whose deaths are included in the death-rate shown in the diagram, abnormally swell the death-roll. In support of this view I beg to quote the following observations which have been furnished within the past year by certain of the Registrars of Deaths, and published in the notes appended to my Quarterly Returns :—

Kiltimagh District (Swinford Union).—"I find that coming to my dispensary are numbers of returned Irish-Americans who have been sent back from America by their medical advisers suffering from phthisis. This practice, of course, assists in the spreading of the disease among the poor people at home."

Kiltimagh District (Swinford Union)—Further Report).—"Pulmonary tuberculosis rife; almost all cases can be traced to foreign origin, either England or America, where our young men, through overwork in pits or tunnels, and through insufficient nourishment, contract disease, and come home 'to be cured.'"

Rooskey District (Strokestown Union).—"There were three deaths registered during the quarter from tuberculous disease—two of whom were returned Irish-Americans."

Milltown District (Mullingar Union).—"The death registered from phthisis was a returned American, a young woman, 31 years, and unmarried."

Goleen District (Skull Union).—"The one death registered from tuberculosis was that of a girl recently returned from America, where she contracted the disease."

Westport District (Westport Union).—"A disease, which is locally known as 'the English cold,' is very prevalent among young men at this time of the year (September quarter). It is met with amongst those who have just returned from harvesting in England. It is sometimes a simple bronchitis, but most commonly incipient phthisis. It is easily traced to the wretched sleeping places called 'Paddy-houses' in which Irish farm labourers are permitted to be housed in England. These 'Paddy-houses' are often regular death-traps, dark, unventilated barns, in which the men have to sleep in coarse bags on the floors."

I am indebted to Dr. Bermingham, the Medical Officer of Westport District, for this valuable note, which, though it relates to his district, must be applicable to other districts from which migratory labourers proceed annually to England.

Deaths from Tuberculosis amongst Infants.

Though infant mortality in Ireland, as a whole, is much lower than in England and Scotland, the question of tuberculosis amongst infants is an important one, specially in our urban districts.

In my Annual Report for 1906 I presented a diagram showing the infant mortality from fourteen principal

causes during that year, from which it appears that the infantile victims of tuberculous disease numbered about 400, being equal to a rate of 3.85 per 1,000 births registered. A similar diagram (enlarged) for the year 1905 will be found in my exhibit.

Percentage of Mortality from Principal Forms of Tuberculous Disease by Sexes

The next point with which I propose to deal is the relative percentage of mortality from the principal forms of tuberculous disease, and their distribution under each sex. This is shown in a diagram contained in my Annual Report for 1904, an enlargement of which, for the year 1906, is included in the Exhibition. It appears that in 1906 the deaths from phthisis, or pulmonary consumption, were 76.0 per cent. of the total deaths from tuberculosis. The deaths from tuberculous meningitis were 6.8 per cent., from tuberculous peritonitis and tabes mesenterica 3.9 per cent., from general tuberculosis 7.3 per cent., and from other forms of the disease 6.0 per cent.

The deaths among males from phthisis were slightly less than those among females, the former being 75.8, and the latter 76.2. The percentage of deaths from tuberculous meningitis was the same for both sexes—viz., 6.8 per cent. The percentage of female deaths from tuberculous peritonitis and tabes mesenterica was in excess of the male percentage, the rate for females being 4.2, and for males 3.7 of the total.

Seasonal Mortality from Tuberculosis

The seasonal mortality from tuberculosis in Ireland is shown in a diagram contained in my Annual Report for the year 1904. From that diagram it appears that of the total deaths from tuberculosis 29.1 per cent. were

registered in the June Quarter, 27.3 per cent. were registered in the March Quarter, 22.3 per cent. were registered in the September Quarter, and 21.3 per cent. in the December Quarter of the year.

Geographical Distribution of the Disease

In my Annual Report for 1905 is a map showing the death-rate from all forms of tuberculous disease in 1905 for each Poor Law Union (of which there are 159)—the deaths in lunatic asylums and certain institutions being assigned to the union to which the deceased belonged. An enlarged copy of this map is suspended in the Exhibition. (See reproduction of Map, page ix.)

From it it appears that in two unions—viz., Lisnaskea, in the County Fermanagh, and Tulla, in the County of Clare—the rate did not exceed 1.0 per 1,000; that in fifty-nine unions the death-rate from tuberculous disease ranged from 1.0 to 2.0 per 1,000 of the respective populations; that in sixty-eight unions the mortality exceeded 2.0 per 1,000, and was under 2.7 per 1,000, which was the average death-rate for all forms of tuberculous disease for Ireland in 1905. That in eleven unions—viz., Antrim, Dingle, Dundalk, Enniscorthy, Larne, Limerick, Listowel, Lurgan, Midleton, Naas, and Rathdrum—the rate exceeded 2.7, but was under 3.0 per 1,000 of the respective populations.

That in sixteen of the Poor Law Unions of Ireland—viz., in Banbridge, Bandon, Belfast, Carrick-on-Suir, Castlederg, Clonakilty, Downpatrick, Kinsale, Lisburn, Londonderry, Mallow, Newtownards, Skull, Strabane, Tullamore, and Waterford—the rate ranged between 3.0 and 4.0 per 1,000. Finally, that in three unions the rate exceeded 4.0 per 1,000. In North Dublin Union the highest death-rate from all forms of tuberculous disease was recorded, being 4.76 per 1,000; in Cork Union the rate for the year was 4.53 per 1,000, and in Dublin South Union it was 4.38.

Mortality from Tuberculosis by Occupations or Social Position

There are not materials for preparing statistics of the mortality from tuberculosis for the whole country by occupations or social positions, but a table will be found in the Annual Summary of my Weekly Returns for last year showing the occupations or social position of the persons whose deaths were registered in the Dublin Registration Area as having died from tuberculous disease during the year 1906. A large table dealing with the subject is included in my exhibit.

From this table it appears that of the total deaths, 1,694 (representing a rate of 4.5 per 1,000), 6 only belong to the clerical, medical, legal, and other professions, naval and military officers and heads of public departments; that amongst the merchants and manufacturers of the higher class there was only one death; that amongst persons of rank and property (not otherwise described) there were only four deaths. In all, amongst the professional and independent classes there were only eleven deaths out of the total of 1,694.

From the middle classes 243 deaths were registered as follows:—11 from the general body of officials, civil service, banking, &c.; 49 from traders (excepting petty shopkeepers), business managers, &c.; 120 deaths of clerks and commercial assistants, and 63 deaths of householders, in second-class localities, not included in above.

The deaths from tuberculosis among the artisan class and petty shopkeepers numbered 391, and comprise the deaths of 26 working engineers, engravers, printers, watchmakers or jewellers; 115 persons engaged in the building and furnishing trades; 84 in the clothing trades; 127 in other callings ranking with trades, and 20 petty shopkeepers.

In the general service class, of a total of 635 deaths, 27 were employed in the army, police, postal delivery, or prison services; 66 were those of domestic servants; 58

of coach and cardrivers, and vanmen, and 484 were described as hawkers, porters, or labourers.

In addition to this, the deaths of 414 persons who were inmates of the workhouses occurred from tuberculous disease.

Comparing the mortality in the first four classes, excluding Class V., workhouse inmates, we find that in the professional or independent class the rate was .63, in the middle class it was 2.79, among the artisan and petty shopkeepers it was 3.54, and in the general service class it was 4.12.

These figures show that amongst the classes which are better housed, clothed, and fed, the mortality from this disease is much less than amongst those who have not the same advantages as regards housing, clothing, and diet, and whose callings expose them more to the severity of the weather than those more affluent in their circumstances.

Causes Favouring the Spread of the Disease

I now come to consider the causes favouring tuberculosis, and I may mention three principal factors contributing to the spread of the disease :—

1. Insanitary Houses and Surroundings

This is undoubtedly a very prominent cause in disseminating the germs of the malady. The notes on the sanitary condition of their districts, which are supplied to me each quarter by the Registrars, contain many references to this. The Registrar for Cloyne District (Midleton Union) remarks :—"I attribute 40 per cent. of the cases of illness amongst my dispensary patients to overcrowding and the filthy condition of the dwellings, the breathing and re-breathing of vitiated air causing a form of anæmia, accompanied with great debility, lowering the germicidal powers of their tissues, making them

easy victims to tuberculous disease." The Registrar for Waterford No. 1 Urban District reports:—"The sanitary conditions in many parts of the district are bad—there are many houses having objectionable surroundings. The housing is in places deficient in air space, light, and ventilation. Tuberculosis is prevalent—it accounts for about 28 per cent. of the deaths." The Registrar for Holywell No. 2 District (Enniskillen Union) states:—"Tuberculosis is on the increase, and, I fear, will continue to be so until more stringent measures are taken to compel the people to pay more attention to the cleanliness of their houses and their surroundings, and particularly to the principle of ventilation and sunlight."

In connection with the influence exercised by insanitary surroundings in promoting tuberculosis, it is interesting to note the low death-rate from tuberculosis which prevails in our Irish prisons, which is doubtless due, in a large measure, to the care exercised by the Prisons Board in regulating the sanitary condition of the cells in which the prisoners are confined, and controlling their dietary. Her Excellency has been presented by Mr. James S. Gibbons, C.B., Chairman of the Prisons Board, with a series of photographs, showing the various descriptions of cells in the Irish prisons.

2. Intemperance

A further cause which operates, more especially in urban districts, is intemperance. In addition to the enfeebling of the constitution from over-indulgence in strong drink the money spent thereon is frequently taken from that required to provide food and clothing for the children, who are thus rendered less able to withstand the attacks of disease.

3. Neglect of Precautions against Infection

A third powerful agent is the practice which largely prevails in this country of living with consumptive

patients without taking any precautions against infection—the result being that one sufferer is liable to infect the whole family. Nothing is more commonly met with than to find a poor consumptive living in a cabin with brothers and sisters, sharing their meals, and frequently sleeping with other members of the family, without the slightest regard to disinfection, and when remonstrated with the answer is, "Surely it is only a decline."

Several other causes might be mentioned, but these will suffice for my purpose this evening.

REMEDIAL MEASURES.

We now pass to the remedial measures which come within our power to adopt, and these may be considered under three heads:—

1. The Improvement in the Dwellings of the Working Classes

I am glad to say that much has been done in this direction.

Those who remember the dreadful cellar dwellings which were to be found in Dublin thirty years ago will feel grateful to our distinguished Medical Officer of Health, Sir Charles Cameron, C.B., for his unceasing exertions to better the housing of the working classes.

It is hardly necessary to refer to the deep obligation which the inhabitants of Dublin owe to Viscount Iveagh, K.P., through whose princely munificence large unhealthy areas have been cleared and sanitary dwellings erected.

Much, however, still remains to be done, not only in Dublin, but throughout the country generally, if we are to have the terrible tuberculosis death-rate reduced.

2. Dispensaries, Sanatoria, and Hospitals

The second way which is open to us to limit the ravages of the white scourge which paces our land is by the establishment of special dispensaries, sanatoria, and hospitals for the treatment of the disease.

As this particular province of the subject will be dealt with by some of my co-lecturers who are professional experts, I need only allude to it here.

In addition to the value of sanatoria and special hospitals for the cure of the disease, there can be no doubt that these institutions effect three other great objects :— (1) The alleviation of the symptoms of the poor sufferers, and (2) the withdrawal of the patients, at least temporarily, from their surroundings, in which in all probability they have been infecting others, and (3) the education of the patients and their friends as to the necessary precautions.

3. Administrative and Educational Measures

A third preventive lies in administrative and educational measures.

Pulmonary tuberculosis should be made by statute a compulsorily notifiable disease. A resolution to this effect was passed at the Special Meeting of the Consultative Committee of the Exhibition held on the 12th October. Children at school should be made liable to periodical inspection, so as to have the disease detected in its earlier stages, and hygiene should be taught everywhere in our schools. It is pleasing to note that the Board of National Education have taken this matter in hands, and that in their Programme of Instruction for National Schools, which came into operation on 1st July, 1906, they have directed that simple lessons on health and habits should be given to the scholars.

In bringing this lecture to a close, I desire most earnestly to impress on my hearers the responsibility

which rests on the members of the community individually to do their utmost to aid in the efforts being made by Her Excellency the Countess of Aberdeen and the Women's National Health Association, as well as by other societies, to awaken the people generally to a sense of their danger. It is my firm belief that if our countrymen and countrywomen were really aroused to the gravity of the situation, their common sense and intelligence would make them able allies in this great conflict, and that we should soon have to congratulate ourselves on the fact that the excessive mortality from tuberculosis, which is a present disgrace to Ireland, was a thing of the past.

THE BEARING OF TUBERCULOSIS ON THE CONDITION OF IRELAND

By R. F. TOBIN, F.R.C.S.; Surgeon to St. Vincent's Hospital.

His Excellency the Lord Lieutenant in the Chair.

Surgeon Tobin said: Your Excellencies, ladies and gentlemen, it goes without saying that it is with a sense of great diffidence I stand upon this platform to address you upon a subject that so many specialists in Ireland have already dealt with. I must also say that as I face you I feel—excuse my saying so—that you are rather a difficult audience. You are difficult in this, that many of you take a very great interest in this subject, many of you are more fully acquainted with all its details than am I, while there are some—perhaps a minority—who have given it very little thought indeed. It is to the latter class that I have to speak. There is a further difficulty. Part of the subject on which I am now about to address you was dealt with by Professor Lindsay in this hall quite recently in a very full and comprehensive way. He completely captured the position that he attacked on that occasion. Now, on my way here this evening I thought of these things, and I only got relief when I remembered this place is close to Donnybrook, and that when a man went to Donnybrook Fair long ago it was the custom to go about feeling for heads, and whenever one was found to strike it. I therefore decided that the very best thing I could do on this occasion was to go over the various things said since this excellent educational enterprise on tuberculosis was set on foot, and to deal with the various objections I have heard

raised to them. I regret to say that the first head I have to deal with is a lady's. I met her the day before yesterday in a tramcar, and we entered into conversation. She seemed to have followed all that has gone on very carefully; yet her first remark was: "I don't believe a bit that this disease is infectious." "Why don't you believe it?" I said. Well, she at once told me of the case of a boy she knew who got tuberculosis although he was living on the side of a mountain. She knew the case, she said. "It was the hip that was bad, but the skin was not broken, and in no possible way could the bacilli have got in. Besides, he was out in the open, living out in the mountain air." And, in short, she would not believe anybody that the disease was infectious. Well, it was not very easy to carry on this conversation effectively in the tramcar, and I met the difficulty by saying to her that if she would attend here to-day I would speak upon the subject. Now let me tell you at once what usually happens in a case such as that lady cited. This particular boy—the very picture of health—spends a number of years of his life running about upon the mountain side. One day an accident occurs. He falls from a tree on to his hip and bruises it, not externally, perhaps, but there is a bruising and a concussion of the joint that injures that part and lessens its vitality. He goes home and tells his mother. She says—"You had better lie down for a few days." He does so in some corner of the cabin. There may be in the house a brother with a cough, who spits carelessly about, or a sister with a running sore in her neck not properly looked after, or the room may have been inhabited at a previous time by someone so afflicted. At any rate, in the dust of the room there are bacilli of tubercle which, being easily set floating about, may enter the patient's body either directly or after settling on the food he takes. I mention this source of infection to show the necessity of cleanliness in one's surroundings, and how one individual's dirty habits are a danger to all amongst whom he lives. Supposing bacilli, either in

the way I have indicated or in the milk of a tuberculous cow, to have found their way into the body, what are the other stages before disease is set up in the hip under consideration? First, the bacilli must enter the blood. They may do so through any abrasion in the delicate membranes that lines our lungs and intestines—the nose and mouth, &c. Once in the blood, they are carried about. They settle in the injured part; they grow and multiply there owing to its diminished vitality. In other words, the normal parts are replaced by a tuberculous growth and make a condition commonly spoken of as a white swelling. Now these facts, let me tell my lady friend, are established beyond question—proved by the investigations of pathologists beyond the possibility of error. You may believe the word of a pathologist because he is a scientist, and you may believe the word of a scientist beyond that of an archbishop, because archbishops are bound to love one another and scientists are not. And, therefore, when a scientist makes a mistake another scientist at once fixes upon him and shows up that mistake in a most thorough way. And here, let me tell the uninformed few what pathology is, and what pathologists do. Pathology is that department of medicine that defines the physical changes on which departures from health depend. The pathologist is, therefore, busied with diseased structures. If a patient has died suddenly he has to examine the body and tell the coroner the cause of death. If one has died slowly, and a *post-mortem* examination is allowed, he tells the physician whether or not the diagnosis made during life is borne out by the conditions found after death. In a hospital the pathological laboratory is perhaps the most important room. In it the blood and the secretions of patients are examined. Minute portions taken from tumours and other diseased parts are put under microscopes, and the nature of the trouble of bacilli so ascertained. Specimens of the various bacilli that cause disease are kept and cultivated and experimented with. In a word, the cause of disease is studied in every possible way. The outcome

of such studies is that we know for certain that infectious diseases are due to the growth in the body of minute organisms foreign to it, and in every sense invaders. They are of the nature of fungi and belong to the vegetable kingdom. They run in classes which do not intermix. The germs of scarlatina do not produce tuberculosis, for the same reason that mignonette seed does not yield daisies, and that greyhounds do not spring from Aberdeen terriers. The analogy extends to all particulars. Not only are the classes distinct, but the families within the possibilities of the class have their peculiar energies. Now, if I were to come forward and say I know the microisms that produce a certain disease what would I be expected to prove? I must first prove that these microisms always exist in connection with the disease in question. I must then take them and cultivate them in some other soil—say in an infusion of organic matter such as jelly—and I must repeat the process many times so as to thoroughly separate the final cultivation from all extraneous matter. Then with this cultivation I have by inoculation to produce the original disease in sound animals; at the same time uninoculated animals of a like kind being kept under conditions similar to those of the inoculated to prove that there is nothing in the surroundings that would cause the disease. It is only when such experiments have been made and verified by many observers that the medical profession accepts as proven that a disease is propagated by germs. Now it will be very tedious if every time anyone makes a statement such as this lady made to me he or she has to be specially furnished with some explanation such as the foregoing. I have, therefore, a suggestion to make to your Excellency. I think the Ladies' Association for the Prevention of Tuberculosis should offer a prize of £100, or £1,000, or £10,000, to anyone who would conclusively prove that tuberculosis is not infectious. Of course, to prevent unnecessary trouble or vexatious points being raised, you should do as is done at race meetings where objections are lodged. The person

making the objection should deposit a certain sum—we will say 5s.—for every £100 claimed. His views are then submitted to an impartial judge—the Chief Baron I am sure would be glad to give his services. If the person proves his case he will, of course, receive the award, but if not the deposit will be forfeited and would go towards the funds of the Association. I think in this way we might establish beyond contradiction the first and most important and essential point—the point which is the foundation of this movement—the point that tuberculosis is a germ-born and, therefore, preventable disease. Oh! but what about the soil? people stand up and say. You must have a suitable soil. There are a great many other considerations as well, but that is the case with all seeds. Trees usually throw forth millions of seeds every spring, but they don't all take root. If they fall upon the roadway or on the path, or if the birds of the air pick them up, they don't take root. And a hundred other things prevent them taking root. But we want to maintain that this seed of tuberculosis is the same as other seeds—they grow well in favourable soil, and they grow badly in unfavourable soil; but that does not prevent them from being seeds. The scientists have told us a good deal more upon the subject. It is marvellous how fast they are advancing. They have told us exactly what happens when these bacilli infect the body. Suppose you get a scratch from a pin on your finger, and that there are deposited in the scratch a certain number of tubercle bacilli, what then would happen? A very strange thing, indeed. It is almost incredible. In the blood there are white corpuscles, and watching these you would see them leave the circulation. They walk through the very thin coat of the capillaries, and at once make their way towards the invaders and enter into a fight with them, and if the white corpuscles are healthy and energetic they succeed in devouring the intruders in very large numbers. This can be seen as clearly as anything can be seen. But, said another lady to me on an occasion when I told her about these white

corpuscles and the invaders: "Oh, I don't believe a bit about what you men see through your microscopes." Luckily, I was able to answer her at once. I said: "Do you believe all you see through your spectacles? A microscope is only a means for adjusting the focus exactly as spectacles do, and the microscope has this advantage over spectacles, that they are never coloured. What you see through the microscope can be relied upon as much as you can rely upon anything that comes to you through your eyes." Now, the lesson I am speaking of can be demonstrated with absolute clearness to anyone who takes an interest in it. All of you know pathologists who would gladly show you what I am speaking about. I will send anyone who comes to me to our pathologist, Dr. O'Farrell, and I am sure that he, with the greatest readiness, will give a demonstration.

There has been a good deal spoken lately about the injection of serum. It is not in everyone's body that the white corpuscles are equally active. In some people they are much more active than in others. The amount of activity in those white corpuscles can be ascertained. Over and over again Mr. O'Farrell has shown me this. A number of bacilli and white corpuscles from a patient are taken and put into an incubator and left to deal with one another. It is very much like the action of the sporting publican when he takes a terrier and a number of rats and puts them into a pit in order to ascertain how many rats one terrier can dispose of. In the same way it can be discovered how many bacilli the corpuscles can deal with, or at any rate the energy of the corpuscles in the sick man compared with the energy of the corpuscles of the healthy man. This process is called ascertaining the opsonic index. In cases in which it is low, in which the white corpuscles are wanting in vigour, they can be stimulated by tuberculin. There are many kinds of tuberculin in the market, and it is probable that it is in the injection of some such serum that the cure of tuberculosis will be found.

Numerous observers are at work in this direction.

For instance, Dr. Dunne has a number of patients under treatment in the South Dublin Union with, I am told, very good results. While considering the action of the leucocytes on bacilli it is pertinent to contrast their activities with our own when face to face with cases of tuberculosis. I put it this way. We all here are interested in the anti-tuberculosis campaign. Now one white corpuscle thinks nothing of dealing with five or six bacilli of tubercle. How many cases of tuberculous disease is each one of us, each in his or her own way, ready to give even a little attention to? We are full of ardour now. What will we be this day six months? May I suggest to your Excellency that you should call us together from time to time to see how we stand in this respect—to take our opsonic index, so to speak—and to administer some stimulating treatment if we are falling short. Let us now give a little consideration as to how we should proceed to combat our deadly foe. We are not here to ponder on difficulties—Irishmen do not do so in war—but to cast an eye on the situation, take in the points of vantage, and seize them. I shall refer to three—1st, notification; 2nd, the spread of tuberculosis from animals to man; 3rd, its spread from man to man.

1. *Notification* is so evidently essential that I say to you don't argue with the man opposed to it; hit him. We must get compulsory notification at once. Without it we do not know where we stand.

2. The spread of tuberculosis from animals to man may be summed up by the one word—milk. From the tuberculous udders of cows the bacilli are conveyed by milk. This ranks amongst indisputable facts. It could be made plain to infant schools if we had notification. We would merely have to take a given area, centre our attention on the milk, get it clean and keep it clean, and then put our statistics on a black board. The effect of such action as that would be that you would have the whole country emphatic in its insistence that similar measures should be taken everywhere.

3rd. From man to man the disease is carried by the careless expectoration of tuberculous patients. Expectoration is a habit that grows even upon healthy people. It is fashionable amongst some. I know it, for I like to travel cheaply—a not uncommon desire—but I am often prevented from getting into a third-class carriage by the state of its floor. I look up and see a notice, "Please don't spit upon the floor." Sometimes a wag has obliterated the "don't." That is well. It checks the education in law-breaking carried on by the company; yet he would have been prosecuted had he been caught in the act. It is, therefore, plain that the railway companies must be educated. The way to do it is this. When you come across a third-class carriage with a dirty floor adjourn to the nearest carriage with a clean floor, irrespective of its class, and if you are prosecuted by the company put yourself in communication with the Women's National Health Association, and give its President as your bail. Of course the bacilli of tubercle are spread from man to man by other means than by expectoration. Every improperly dressed tuberculous sore is an agency of the devil for the propagation of tuberculosis. If I could only get you to take an interest—an academic interest—in bacteriology this would be plain to you, and you would be all forthwith champions of preventive medicine. Let me, therefore, say a few words on bacteria and their effects not only upon the human body, but the part they play generally in the whole economy of nature. You must bear in mind that not all bacteria are harmful. There are numbers of bacteria that do most excellent work. One of the largest establishments in Dublin, and one that we are most proud of, is Guinness's. What is Guinness's remarkable for besides its stout? Why for the excellent care they take of their employees. If you look at these men you will find that they are well fed and well cared for. But let me remind you these are not the real workers. The makers of the XX porter are the lean and hungry microisms known as the yeast plant. Should

these sicken what would happen, not to them but to the dividends? I ask the question of any ordinary or preference shareholder here present. Why should they not sicken? We all know that fleas, small as they are, "have lesser fleas to bite them, and these fleas fleas and so *ad infinitum*." So we stand and gaze, not knowing where creation begins or where it ends. But there are two important facts which we do know:—1. That bacteria, under which head I include all fungi so as to avoid the confusion that comes from the multiplication of terms, play a most important part in nature's economy. They produce phthisis pulmonalis and all infectious diseases; they make beer and they make bread. They can convert beauty into putridity, and the foul sewage of a town into a stream as clear as that which flows from the mountain's crest.

No. 2. That the study of this factor so boundless in its possibilities, so important as regards the health of the country and many other great interests, is overlooked practically by all except the committees of a few hospitals, who divert some of the limited funds at their disposal to this useful work.

I submit these points for the careful consideration of all, but since in civilised communities the purse is more than the health I specially commend to shareholders in breweries and bakeries, and in all industries that sweat the poor confiding fungi. Let them remember that if a worm can turn so can a fungus. I call the potato famine as my witness.

The study of bacteriology is, however, but one of many questions raised by this anti-tuberculosis campaign. In the manufacture of many articles one finds that the bye-products are almost as valuable as the direct output. The housing of the poor, their feeding, clothing, occupations, all that is included under the term hygiene, are forced into notice by what we are now doing—even the social and spiritual relations of man to his fellow-man will be brought into prominence. As

soon as you begin to proceed practically on this work you will find how completely class is divided from class in this city; how little its inhabitants of the squares know of the slums in their immediate neighbourhoods. How difficult it will be to bridge the gulf that separates one from the other. Yet this is a Christian land, and a very Christian land. Such knowledge as I have of life has crept into me during three periods, each of twenty years. The first period I spent in Ireland amidst Catholic surroundings, and amongst other things was ingrained in me the belief that Protestants were all bad and Catholics all good. That Protestant boys held a belief diametrically opposite I have reason to know, for I can recall an occasion when one passing me cried out, "To hell with the Pope." We adjourned to a neighbouring field and fought for about twenty minutes. I cannot say which of us got the best of it; but this I know, that if his face next day was as sore as was mine the Pope still owes me a great deal. The second period saw a disintegration of this belief. In the Army Medical Department I wandered about a good deal at Her Majesty's expense, and as I did so I found myself unable to recognise Catholics by their goodness or Protestants by their badness, and amongst the most highly educated of the most prosperous people I found a tolerance for the opinions of others, founded not on a careless indifference as to right and wrong, but on the power of looking at both sides of a subject. At this, the third period, I find myself back here in Ireland again. Thank God for that. What a country it is! but still more what a country it would be if we would all—Catholics and Protestants, Unionists and Nationalists, landlords and tenants, while holding each side to its own opinions—strive to dwell on and to give prominence to the great questions on which there is no difference of opinion, and which tend to bind in one the whole human family. The point I want to make is well put forth in these lines:—

" Many I believe there are
Who live a life of virtuous decency,
Men who can hear the decalogue and feel
No self reproach ; who of the moral law
Established in the land where they abide
Are strict observers ; and not negligent
In acts of love to those with whom they dwell—
Their kindred and the children of their blood,
Praise be to such, and to their slumbers peace.
But of the poor man—ask, the abject poor ;
Go and demand of him ; if there be here
In this cold abstinence from evil deeds,
And these inevitable charities,
Wherewith to satisfy the human soul?
No—man is dear to man ; the poorest poor
Long for some moments in a weary life
When they can know and feel that they have been,
Themselves, the fathers, and the dealers out
Of some small blessings ; have been kind to such
As needed kindness ; for this single cause
That we have all of us one human heart."

As we advance in this great movement over which Her Excellency presides I feel—perhaps some of you feel, perhaps many of you feel, perhaps all of you feel—that the concluding words of the verses I have read to you are very true—that we have all of us one human heart. May it not be that, if in this great philanthropic enterprise we all unite with energy and with resolution, the act of so doing will unite us in other things besides, and will so rub out and blot out, the differences we have in other matters, that when tuberculosis has been stamped out we may find ourselves living in a country in which healthy homes have been established, in which good, pure air, good food, good education, and other characteristics of prosperity and happiness prevail, and above all living in a country in which good fellowship, with all that it means, is a strong bond binding us together.

Rev. T. Denham Osborne said: Your Excellency, ladies and gentlemen, it is a great pleasure to me to be

here upon this occasion, and, if I may say so, especially as I represent that body of people whom Dr. Tobin in his early days considered were so highly objectionable. I will not say I was brought up in a precisely opposite view to that in what he was brought up, but I think I can agree with Dr. Tobin in believing that there are better days in store for Ireland in that respect. And I am sure when this most important object to which your Excellency is devoted is put before the people, north, south, east, and west, among the good results which will be accomplished will be this great result which Dr. Tobin has touched on—namely, that the people will understand one another better and will realise that this country in which we live is not one that should make us fight with one another to make it better, but one in which we could make better best by forgetting our bitterness in the peaceful endeavour to help one another in helping our dear motherland. I remember once reading a story of life at sea, where the skipper and one of his mates had a terrible row. They came to blows, and of course after that they did not speak. All the crew knew of it, and they also knew that the moment the vessel reached port there would be law proceedings, and that these men would hate one another for the rest of their lives. But just as they were nearing port one of the sailors fell overboard. The ship was put about; a boat was launched, and after a terrible struggle he was rescued and brought on deck. Efforts were made to restore animation by means known only to the captain and this particular mate—the two men who were bitter enemies. They worked for hours, and at last they succeeded in restoring life once more as it were to the man. Just as they were about finishing their great humane task the captain turned to the mate and said, "Well, John, as to that little difference between you and me, 'tis off." Well, now, I think that by the time we have succeeded in stamping out this terrible disease of tuberculosis which is devastating our land, and have restored to many who are exposed to its ravages, and perhaps to many who are

already seized by it, renewed health and vigour, we will be able to say to each other that our quarrels and religious differences are "off." I do hope that ministers of religion will take this most important movement for the betterment of our fellow-creatures into most earnest consideration. I do feel that something could be done by everybody, and of course all are bound to do what they can to help. Ministers of religion can do a great deal. I know many ministers when they speak to their people speak upon matters of this kind admirably and well. Dr. Tobin asked us to unite with energy in this movement. We want co-operation, but we want more; we want to do something by way of sacrifice of our time and cost and pleasure in helping forward the movement. It is with the greatest possible pleasure that I move that the best thanks of this meeting be accorded to Dr. Tobin for his admirable lecture.

MRS. NUGENT EVERARD: I feel it a great privilege to be allowed to second this vote of thanks to Dr. Tobin for his most interesting lecture—a lecture which must have struck home to the heart of everyone present. He showed us how everyone can do something for this great cause. He spoke especially of the unfortunate differences that often prevent people from coming together in this country. But this wonderful work is one in which every person in this country will unite in forwarding. We do not want this terrible white scourge to decimate our people, and, therefore, we can all work with hand in hand and heart to heart in assisting her Excellency and the Women's National Health Association by every means in our power to combat this fell disease. There was an excellent suggestion made by Dr. Osborne, and that was that we should try and persuade every minister of religion to help us in the great work, because I consider that it is by them the best and most effective work would be done among the people. I have great pleasure in seconding the vote of thanks to Dr. Tobin.

HER EXCELLENCY: I have here a lady friend whom I have known for many years, and who was always identi-

fied with every movement for the good of Ireland, and one to whom I always feel grateful for her co-operation in the interests of Irish industries, and in every other good cause for Ireland. I now call on Mrs. Power Lawlor to support the vote of thanks.

Mrs. Power Lawlor: Your Excellency, ladies and gentlemen, when I came here to listen to the lecture by one of Ireland's most gifted sons, under the presidency of one of my oldest and most valued friends—her Excellency—I had not the least idea that I shoud be called upon to speak. I can most fully support and bear out the observations made by Mr. Tobin when speaking of the advantage of convincing people that tuberculosis is infectious. One of the means we ought to employ to combat this fell scourge is to make it clear and plain and to explain to everybody the fact that it is infectious. Certainly it is not known as it should be. One cannot persuade the poor people of the danger of the infection to those living in the same house with a consumptive patient. Sometimes we find them not only living in the same house, but occupying the same rooms, and very often in the early stages of the illness actually occupying the same bed. To combat this disease, to stamp out consumption, everyone should work hand in hand, heart to heart, and soul to soul. One of the happiest memories of my life is to have been associated with her Excellency the Countess of Aberdeen in the very beginning of the Irish industries movement, when we used to have to climb upstairs to the very top of a very small house where we held our meetings. She laid the foundation of the great Irish industries movement, and went on with indomitable pluck and energy. She has ever and always used the great faculties with which she is endowed for the glory of God and the good of her fellow-creatures.

The vote of thanks was put and carried with acclamation.

Surgeon Tobin, in replying, said: I thank you most sincerely for your kind vote of thanks. I just want to say one word. Tuberculosis is an infectious disease.

It could be scheduled under the Infectious Diseases Act, but perhaps that would be a little too stringent. There is a great deal to be said for enforcing the Infectious Diseases Act, but perhaps there was more to be said for doing what the Local Government Board suggests—viz., bringing in a milder Act, compelling notification to be given, with a view to getting statistics and with a view to sending medical assistance to the people attacked by consumption. I have come to the conclusion that the milder measure is the better, and for this particular reason—that it would be very largely adopted. It would be invaluable for the poor people. They would lose nothing; they know when they have this disease, and all that would be done would be that people would call upon them and help them to the best of their ability to deal with it.

WHY IS TUBERCULOSIS SO COMMON IN IRELAND?

WITH SUGGESTIONS FOR ITS PREVENTION AND TREATMENT

Appalling State of Ireland with regard to Tuberculosis

By SIR JOHN BYERS, Professor of Midwifery, Queen's College, Belfast.

Her Excellency the Countess of Aberdeen in the Chair.

Mr. Chairman, Ladies and Gentlemen,—That tuberculosis (that is, consumption in its various forms)—and the Tuberculosis Exhibition here demonstrates that almost every part of the body may be affected—is far too prevalent in Ireland is evident from the following facts, most of which are shown in the statistical charts on the walls of this room:—1. In the records of the various countries of the world Ireland stands fourth highest in its mortality from pulmonary tuberculosis, being only exceeded by Hungary, Austria, and Servia. 2. Comparing England, Scotland, and Ireland, it appears that while in 1864 Ireland stood lowest of the three, with a rate of 2.4 per 1,000 living, the rate for England being 3.3, and that for Scotland 3.6, in 1905 and in 1906 Ireland was highest with a rate of 2.7, Scotland next with 2.1, and England lowest with a rate of 1.6. In 1879 the death-rate in England and Ireland from tuberculosis was about the same, and in 1885-86 it was the same in Scotland and Ireland. In Ireland in 1906 no less than 11,756, or 15.8 per cent., of the total deaths were due to tuberculosis—that is, more people died from this cause alone than from cancer and all the principal epidemic diseases (influenza, whooping-cough, typhoid fever, measles, diphtheria, and diarrhœa) added together. Further, the majority dying were in the prime

of life (between fifteen and forty-five years of age), and for every death from tuberculosis there were at least ten persons suffering from various forms of that disease, many of whom have their wage-earning power diminished or altogether taken away. It is a terrible feature of the white plague in Ireland that the mortality is greatest in those ages which ought to form the very backbone of our people. 3. Further, since 1873 in England and Wales, and since 1870 in Scotland, the mortality from what is ordinarily called consumption—pulmonary phthisis—has been reduced by one-half among females and one-third among males, yet there is no such fall in Ireland. In 1906, again, more women than men died in Ireland from pulmonary or tuberculous phthisis.

The above facts show that the condition of Ireland as regards tuberculosis is simply appalling and demands the most careful consideration.

Tuberculosis an Infectious Disease

As you are aware, tuberculosis is now regarded as an infectious disease, the immediate cause being the bacillus or rod-shaped vegetable organism discovered in 1882 by Koch, so microscopic in size that it has been computed that four hundred millions could be ranged close together on the surface of a penny postage-stamp. There are two avenues by which the cause of the disease enter the body—first, by inhalation of the germs directly by close contact with a person suffering from pulmonary phthisis (being disseminated in the act of coughing, shouting, &c., in the form of minute moist particles of spray), or indirectly, through dust containing the dread bacillus given off in the expectoration of a careless person ill of the disease; and secondly, by the ingestion of tuberculous meat and milk, but there can be no question that of the two (meat and milk) the latter (milk) is much the more important, because while meat is taken cooked (which destroys the bacilli) in small quantities by adults whose power of resistance, or immunity as it is scientifically termed, is increased, milk is taken in

large quantities in a raw condition—often as their sole food—by children, with relatively diminished powers of resistance. The bacilli may also find an entrance by skin wounds, or they may be carried in with air in mouth inspiration, or by dirty objects placed in the mouth by children. When the bacilli reach a favourable place or nidus they multiply rapidly, and by their presence and irritation they excite the surrounding tissues to increased growth, which results in the formation of nodules called "tubercles." These in turn usually soften, and if in a lung are coughed up as the expectoration, if in a limb they form a discharge (abscess).

There are two factors in the causation of tuberculosis: first the bacilli, and secondly the predisposition or susceptibility of the individual; and certain conditions, to be mentioned later, might decrease or diminish the infectivity of the bacilli, while on the other hand certain factors heighten or lessen the susceptibility of the individual. We are now in a position to attempt to answer the question—"Why is tuberculosis so common in Ireland?" I propose to-night to discuss some of the reasons that have been usually assigned.

Causes Assigned for the Prevalence of Tuberculosis in Ireland

1. *The Damp Climate.*—We have been told that the prevalence of tuberculosis in Ireland is due to its damp atmosphere, the general humidity causing chest affections which tend to form a nidus for the tubercle bacillus. At the opening of the Tuberculosis Exhibition in Dublin Professor William Osler, in alluding to this view, denied it altogether, and pointed out Cornwall, with a much damper atmosphere than in Ireland, as being a place so free from the disease that consumptives were sent there. In comparing different towns I was much struck with the fact that while in Belfast the death-rate from phthisis was in 1906 2.77 per 1,000, with a rainfall of 34.57 inches, in Glasgow with its humid atmosphere and higher rainfall (35.80 inches) the phthisis death-rate

was only 1.5 per 1,000. In Bolton with a moist climate and a rainfall of 42.43 inches the death-rate from phthisis has fallen to 1.11 per 1,000 for 1906. In Cardiff (with a damp climate and with the ground water in many places near the surface in the gravel, and with the lower part of the town near the docks, moors, &c., on a stiff marine clay, very retentive of moisture) the death-rate for 1906, with a big rainfall of 42.81 inches in this town (very much recovered from the sea as Belfast was) instead of being, as in Belfast, with a smaller rainfall of 34.57 inches, 2.77 per 1,000, was only 1.20; and it has steadily fallen. In Manchester the climate is both damp and foggy, and the deprivation of light is greater than in any other English city (in spite of strenuous efforts to deal with smoky chimneys); yet, notwithstanding this, the phthisis death-rate has fallen to 1.82 in 1906. In Liverpool, a damp city, it is 1.82, and in London, with its fogs at times, the phthisis death-rate in 1906 was only 1.42. Again, if we go to Dublin, with a rainfall less than in Belfast (27.73 as compared with 34.57 inches in Belfast), the death-rate from consumption was 2.91 (that is, higher than in Belfast) for 1906. I cannot, therefore, admit that there is much in the dampness of the atmosphere as a cause of tuberculosis in Ireland.

2. *Dampness of the Soil.*—The dampness of the soil has also been assigned as a cause. Now, it used to be thought that after places were thoroughly drained the phthisis-rate fell, and the experience of Salisbury and Ely were formerly quoted in support of this view; but it was forgotten that in another town—Chichester—that was not drained at all, the phthisis death-rate fell, probably owing to the larger proportion of phthisical patients who died in the workhouse in that town; while in Belfast the main drainage scheme has had no effect in diminishing the phthisis death-rate. Whilst sub-soil may be of some importance, it is now recognised that other conditions are of much more potency in the problem of the causation of phthisis. It is a curious fact, as shown in the Annual Report of the Registrar-

General for Ireland in 1904, that in reference to the seasonal mortality from tuberculosis the greatest number of deaths were registered in the June quarter.

3. *Emigration as a Cause of Tuberculosis.*—It is held by some that the long tide of emigration from Ireland has left behind a physically inferior population—a race of weaklings who propagate weaklings—all very susceptible to phthisis. I am aware that many hold this view, but there are serious scientific objections to it. First, why is it that in a comparatively new town like Belfast, which—from its industries supplying employment—attracts the robust and strong from the surrounding counties, the death-rate from tuberculosis is so high? Secondly, the census returns for the last three decades indicate an extraordinary influx of lives into Belfast between the ages of fifteen and thirty-five years (females showing an abnormally high proportion). These are good lives, and yet we have a high consumption rate. Thirdly, notwithstanding the fact that emigration has produced a curious age distribution of population in Ireland (persons aged sixty years and upwards are equal to 14.2 per cent. of the total population of Ireland, as compared with 10.4 per cent. of the total population of England, and as compared with 10.9 of the total population of Scotland) it is a remarkable fact that the birth-rate, corrected for the number of women at child-bearing ages and for the number of married women, has actually increased in Ireland, while it has decreased in England and Scotland, a fact which indicates that fertility and vitality have not decreased in Ireland. Fourthly, if the cause of the high tuberculosis death-rate in Ireland be the physical decadence of the people in Ireland, what about the condition of those who leave our shores for America? Well, it is stated that in the United States (and figures have been given) the phthisis death-rate for the Irish is higher than for other nationalities. According to this view, if the occurrence of tuberculosis be taken as a test of a physically inferior people, those who emigrate are no better than those who remain behind.

Fifthly, Belfast is in that part of Ireland which has probably suffered least from emigration and where prosperity is, from a commercial point of view, the greatest, and yet its death-rate from tuberculosis is very high. Sixthly, in a recent examination of recruits the smallest number of rejections were among the Irish. Seventhly, as pointed out by Dr. A. Newsholme, in the past it was the small farmers, the cottiers, and the labourers who emigrated in the largest numbers, and these, owing to their extreme poverty, must have been among the least fit, while, on the other hand, those remaining are the offspring of people more favourably situated and who have been living under progressively better conditions than their predecessors in the past, and who accordingly should be more vigorous.

4. *The Susceptibility of Irish People to Tuberculosis.*—It has been stated that there was in the Irish (some said the Celtic, including the Scotch Highlander) race a soil upon which the tubercle bacillus grew with extraordinary facility, and American statistics have been quoted to support this view, and it has also been laid down that Ireland by this reason was severely handicapped in the race with other countries to stamp out tuberculosis. I deny altogether that Irishmen, as a race, are specially prone to consumption. Why was it that according to the Registrar-General's return, Ireland in 1864, when there were far more Celts in the country, had a lower death-rate from tuberculosis than either England or Scotland? Again, it was curious that of the small urban towns in Ireland the one with the highest phthisis death-rate was Newtownards, situated in the most Scottish county in Ireland—Down—where, at the time of the Ulster plantation, the people came not from the Highlands, the home of the Scotch Celts, but from the Lowlands. The people of Ireland are unfortunately suffering from tuberculosis not because they are Irish or Celts, but because, as I shall show later, through want of education, they have not been taught in the past how to grapple with the white plague, and our emigrants

in America suffer largely for the same reason, and also because they keep so much together and are influenced by their environment (that is, the conditions under which they live). Further, I do not accept the view that a high consumption death-rate is a sign of physical inferiority any more than I do that the existence of typhus fever in Ireland in the past was to be regarded in the same way. In both cases their prevalence was, and is, due to want of care being taken to stamp them out.

5. *Poverty and Social Position as a Cause of Tuberculosis.*—The fact that comparing the mortality in the four classes the rate was, from tuberculosis, 0.63 in the professional or independent class, 2.79 in the middle class, 3.54 amongst the artisan and petty shopkeepers, and 4.12 in the general service class, shows that amongst those better housed, clothed, and fed the mortality is much less than among those who have not the same advantages as regards these factors, and whose occupation is more exposed, severe, and laborious. But this explanation, it must be admitted, applies to almost every disease (infectious or not) as well as to tuberculosis. Yet, on the other hand, we must not forget that Ireland has during the past quarter of a century shared with England in increased cheapness of food and of living; wages have increased, and the savings bank returns show that while in 1870 the lodgments were £2,700,000 they had increased to £6,970,000 in 1894.

6. *Food and Drink.*—There is ground for believing that the increased use of tea and white household bread instead of the old porridge and buttermilk and the excessive use of alcohol have lowered the resistance of the people to the tubercle bacillus. The food which is of greatest importance in reference to tuberculosis is milk, because it is now practically agreed that the bacillus of tuberculosis is the same in the cow and in man, and that the disease is intercommunicable, and in the second *interim* report of the Royal Commission appointed to inquire into the relation of human and animal tuberculosis, Part I., Report, 1907, pp. 36 and 37, the Com-

missioners in their conclusion make the following weighty deliverance :—

"A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cow's milk containing tubercle bacilli. The presence of tubercle bacilli in cow's milk can be detected, though with some difficulty, if proper means be adopted, and such milk ought never to be used as food. There is far less difficulty in recognising clinically that a cow is distinctly suffering from tuberculosis, in which case she may be yielding tuberculous milk. The milk coming from such a cow ought not to form part of human food and ought not to be used as food at all.

"Our results clearly point to the necessity of measures more stringent than those at present enforced being taken to prevent the sale or the consumption of such milk."

I am in a position to say, from a communication which I have received from one of these Royal Commissioners, that "the German Commission has ultimately come to much the same conclusion as we have, and the Americans have fallen into line." In Ireland it has been estimated that probably at least 30 per cent. of the milch cows are afflicted with tuberculosis. Now, in the children's hospitals in Belfast—and the same is true of similar institutions in England and Scotland—about from 20 to 30 per cent. of all the children treated suffer from various forms of tuberculosis (bones, joints, glands, abdominal and cerebral types). As a rule these hospitals do not admit children over twelve years of age, and it is curious that the pulmonary forms of tuberculosis are rare, showing that the disease is not in them so often acquired by inhalation as in adults—while, on the other hand, the ravages of the disease in children who require surgical treatment far outnumber what are called the medical forms of tuberculosis. One is driven to the conclusion that the disease is acquired in children largely by ingestion through swallowing tuberculous milk.

7. *Industries.*—According to some it is the influence of industries—especially in towns—which causes the high tuberculosis death-rate. Now, it is curious that in Dublin they have little or no textile industries as in Belfast, and yet the Dublin phthisis death-rate is the higher of the two cities. Then in Bolton, Manchester, Oldham, and other towns where there are cotton and other industries, the death-rate from phthisis has fallen, while it has not done so in Ireland. Further, in Great Britain much of the reduction of phthisis had occurred before systematic action had been well begun for the suppression of dust in factories. Year by year the conditions in the mills regarded as inimical to health—dust, damp, high temperature, and imperfect ventilation—have improved, and in 1904 Commander H. P. Smyth, in his report upon flax mills, says:—"I cannot speak too highly of the efforts that have been made by many [manufacturers]. They have spent time, thought, and large sums of money, going far beyond any legal requirements that have yet been made." I am firmly convinced that the influence of industries—especially the textile ones—as a contributory cause of tuberculosis in Ireland has been overstated. Legally, the owners of mills are obliged to reduce as much as possible anything in their works inimical to health, and taking Belfast, the great industrial centre of Ireland, as an example, supposing the death-rate was proved to be higher among the workers in mills and in factories in that city than among the rest of the population, still that excess would raise the total death-rate only by a twelfth part, because at the present time the numbers of these workers are about 25,000 females and 5,000 males; therefore, if the mill and factory death-rate were 23 per 1,000, whilst the total death-rate was 20, to eliminate the 30,000 mill-workers would make the death-rate 10.75 instead of 20 per 1,000.

8. *Want of Sanitary Reform in Ireland.*—There can be no question that in the past we have not made the same progress as has been done in England and Scot-

land in the sanitary measures taken to improve the dwellings of the people all over the country, and in both England and Scotland, from about 1860 to 1882, when Koch discovered the bacillus of tuberculosis, owing to sanitary reform, coupled especially with the segregation of advanced cases, the disease had decreased even before the discovery of its immediate cause. Tuberculosis has been well called a dwelling or house disease, and, as pointed out by Koch, a person suffering from the disease became dangerous only when he was personally uncleanly—that is, did not disinfect his sputa, or became so helpless in consequence of the far advanced state of the disease that he was no longer able to see to the suitable removal of the sputa, and, finally, that for the healthy the dangers of infection increased with the impossibility of avoiding the immediate neighbourhood of a dangerous patient—for instance, in densely-inhabited rooms—and especially if these rooms were overcrowded, and if they were badly ventilated and inadequately lighted. Let me give some interesting experiments on this question. If you take virulent sputum (expectoration) from a consumptive patient and deposit it on the window-ledge of a house that is insanitary—that is, badly ventilated, perhaps built directly on the clay, and not cut off properly from the ground air and water—it will retain its power for months; nay, more, the ordinary processes of disinfection will not destroy the infective activity of such tuberculous material; indeed, it will survive freezing and thawing. On the other hand, when similar virulent expectoration is exposed in houses which have light and air, with but little radiant sunshine for even two days, its power for evil is gone. With light and ventilation it does not reach its dangerous state of dust before it is deprived of all power of doing harm, long-lived though the bacilli may be under certain sanitary conditions. Now, sanitary reform of the houses does something else in addition to lessening the infectivity of the bacilli: it increases the resistance of the human body to their inroads. Those who

have thoroughly investigated the question tell us how often cases of pulmonary consumption in our towns recur in certain houses and streets, how frequently one or more persons share the room or even the bed of a consumptive, how commonly the consumptive changes his house, thus multiplying infection, and how rarely the house of a consumptive is disinfected either during his illness or after his death. I am bound to admit that the housing of the people in Ireland has improved, but in neither town nor country districts is it at all equal to what it is in England, and therefore want of sanitary progress in Ireland must, I think, be accepted as a cause for the prevalence of tuberculosis.

9. *The Domestic or Home Treatment of the Advanced Cases of Pulmonary Tuberculosis.*—We now come to what I regard as the most potent cause which has prevented a lowering of the tuberculosis death-rate in Ireland, and that is the domestic or home treatment of advanced cases of phthisis, because increasing experience demonstrates that with isolation of these advanced or "open" cases in any country the death-rate falls. Here are a few examples:—In Stockholm, a city with a population of 300,000 (that is less than Belfast), over 400 cases of pulmonary tuberculosis are cared for in the hospitals of the city, with the result that in the last decades the death-rate from phthisis has gone down 38 per cent. As Koch puts it, we are to derive from this the lesson that the greatest stress is to be laid on this measure—namely, the placing of cases of pulmonary phthisis in suitable establishments—and far more care should be taken than hitherto that such patients do not die in their dwellings, where they are for the most part in a helpless situation and inadequately nursed. In Prussia, from 1876 to 1886, the pulmonary phthisis rate stood very high; since that time it has fallen from year to year, and the decrease is now more than 30 per cent.—that is, about one-third. Indeed, it has been calculated that though the population has meanwhile increased the number of people who die every year from pulmonary

phthisis in Prussia is now about 20,000 less than it was twenty years ago, and Koch says that he is firmly convinced that the better provision for patients in the last stage of pulmonary phthisis—namely, the lodging of them in hospitals, which is done in England as well as in Prussia to a comparatively large extent—has contributed most to the improvement. The very opposite line of practice—that is, the want of institutional treatment—is the cause why in Austria and Hungary the pulmonary phthisis death-rate still continues as formerly so high. In Berlin the death-rate from pulmonary consumption has decreased *pari passu* with the circumstance that during recent years more than 40 per cent. of the cases of pulmonary phthisis die in hospitals. A disease which comes near to tuberculosis in many respects is leprosy. In Norway, by isolating the most dangerous cases, the number of lepers has fallen from 3,000 in 1856 to 500 at the end of 1905, and Koch, pointing to this as an example, emphatically declares that advanced cases of phthisis—those which are admittedly the most dangerous—ought to be lodged in hospitals. No man has devoted greater attention to this question than Dr. Newsholme, medical officer of health of Brighton, president of the Epidemiological Section of the Royal Society of Medicine, and one of the greatest living authorities in matters of public health. He made a most elaborate inquiry into the principal causes of the reduction of the death-rate from phthisis in different countries, and came to the conclusion that the one common factor present in all places where the death-rate from this disease fell was the segregation of the patients in general institutions—that is, infirmaries or hospitals. In each country in which the institution has replaced the domestic relief of destitution there has been a reduction of the death-rate from phthisis which is roughly proportionate to the change. Here are his interesting observations as to the increase of consumption in Ireland contemporaneously with its diminution in England. In the United Kingdom, he says, paupers receive two kinds of

medical relief—outdoor or domestic and indoor or institutional (that is, workhouse or workhouse infirmaries). In England during 1861-65 the total number of paupers per 100,000 of the population was 4,824, of whom 694 were in receipt of indoor relief and 4,130 of outdoor relief. In 1901-03 the number of paupers per 100,000 of the population had diminished to 2,218, and of these those receiving indoor relief were 688 (almost the same as 1861-65), while those in the receipt of outdoor relief were now only 1,530. In Scotland there were during 1868-70, 3,896 paupers per 100,000 of the population, of whom 253 got indoor and 3,643 outdoor relief, while in 1901-03 the total number of paupers per 100,000 of population had sunk to 1,922, of whom 242 (almost the same as in 1868-70) got indoor and only 1,680 outdoor relief. In Ireland, on the other hand, during 1861-65 there were 1,036 paupers per 100,000 of population, of whom 928 received indoor and 108 outdoor relief, while in 1901-03 the total number of paupers per 100,000 of the population had actually increased to 2,272, and while those who got indoor relief were 947 (almost the same as in 1861-65), those receiving outdoor relief had increased to 1,325. These figures, Dr. Newsholme thinks—and I am in entire agreement with him—give the key to the difference between Ireland and Great Britain. It is the enormous increase in the former country of pauperism relieved medically at home by the dispensary system which favours the treatment of even advanced cases of phthisis at home. Hence, Dr. Newsholme said, crowded and insanitary homes had their natural effect—when infectious patients have not been removed from them—of increasing the consumption death-rate. The fact that in Ireland the death-rate from consumption is higher among women than among men supports this view, as it indicates domestic rather than industrial infection. The women (wives, sisters and daughters) nursing the sick at home become infected. Further, it has been noted that consumptives do not remain nearly so long in the Irish workhouses as they do in the

English ; and even in Belfast, where the most admirable arrangements were made in the union infirmary to treat consumptive patients in wards by themselves, there is a common custom for the advanced (and most dangerous) cases to go home near the end to die. The same practice occurs, though I am glad to say to a less degree, with patients in the admirable sanatorium of the Belfast Union at Whiteabbey, where in the verandahs in the present weather patients are sleeping. It has also been noticed that Irish Americans, who contract the disease when they emigrate, often come home to die—a practice which, of course, tends to spread the disease among the poor in Ireland; and those living in country districts know how often the people who have acquired the disease in Irish towns come in the end—often in the hope of recovery in their native air—to their old homes in the country to die.

It is interesting to note that there was no poor-law provision in Ireland until 1838, and the Act passed then for the more effective relief of the destitute poor in Ireland, unlike the English Act, entirely prohibited outdoor relief. Before the end of 1840, 127 unions were formed, each with its own workhouse, and the total of 130 arranged for in the Act were soon afterwards established, and relief could not be obtained except in these institutions. During the great famine (1845-48) the restrictions as to the giving of outdoor relief were for the time relaxed, and after the famine the rigid rules as to outdoor relief were reimposed; but, notwithstanding, outdoor medical relief gradually became more general, and from 1880 onwards the general policy of the poor law authorities was completely inverted, until in the year 1903-04 it is really astounding to record that the proportion of new cases of sickness attended, either at dispensaries or in their own homes, formed nearly one-eighth of the total population of Ireland. When I speak of outdoor relief in Ireland I mean, of course, medical relief given in the forms of medical attendance, advice, and medicine, either at the dispensaries or at the homes of the

patients, and if we have to lament that pauperism in this sense has not declined in Ireland, it is clear that it is due to statistical and administrative causes. In Great Britain, as pointed out by Dr. Newsholme, the regulation has been generally enforced that in order that a sick or disabled husband among the poor may receive relief to which his destitution entitles him he must enter the infirmary. A sick wife, however, is not entitled to parochial relief so long as her husband is in receipt of wages sufficient to support her. This is the reason why a much larger proportion of male than of female consumptives are treated in England in workhouse infirmaries.

In an extremely interesting recent paper by Dr. Newsholme, to which, as well as to his other thoughtful writings, I gladly acknowledge much indebtedness, he points out the remarkable fact that while typhus fever has diminished in Ireland, phthisis has contemporaneously increased, and asks this question—"Now, if improvement in general well-being of the population associated with better nutrition, diminished overcrowding, and improved houses has, as is commonly stated, been the main determining cause of the diminished mortality from typhus and phthisis in England and in Scotland, how has the equally striking diminution of typhus in Ireland been brought about and why has it not only been accompanied by any diminution in the death-rate from phthisis but by an actual increase in the death-rate from this disease?" It is plain that the reduction of typhus fever and the increase of phthisis in Ireland have both of them been associated with poor-law administration. As Dr. Newsholme puts it, at first outdoor or domestic relief under the Irish poor-law was very restricted, but in the process of time the poor-law policy of Ireland was changed—medical and other forms of relief being freely given to people still living at home. During the last twenty-five years outdoor medical relief had been more largely given than indoor relief, especially when allowance is made for the fact that indoor

relief includes the provision of a large portion of the general hospital accommodation of Ireland. Associated with this changing administration was the fact that residential conditions of relief were imposed which tended to prevent the great vagrancy and mendicancy which had prevailed so much in Ireland. What would be the effect on typhus fever and phthisis of (1) the increasing immobilisation of the population in their own districts, and of (2) the increase in the proportion of sickness in the aggregate, and especially of phthisis, treated in the homes of the people? The readiness with which medical treatment, both at home and at the dispensary, could be obtained led to the greater portion of the lives of consumptive patients being spent at home. For typhus fever it was otherwise. Here was a disease which, unlike phthisis, was not infectious for several years, but only for two or three weeks, and which disabled immediately instead of after protracted ill-health. The objections of the people to the union hospital were easily overcome for this disease, but only rarely in the case of phthisis. Hence, Dr. Newsholme shows, the same measures which were successful for typhus fever led to an actual increase of phthisis. Typhus fever has been brought to the point of extinction by its institutional treatment, acting in conjunction with the removal of the motives for vagrancy. Phthisis has been rendered even more prevalent than formerly by increasing for this disease domestic at the expense of institutional treatment, and by thus continuing the enormous number of domestic foci of this disease which are implied by the home medical treatment of phthisis among the poor.

10. *Popular Ignorance of the Nature of Tuberculosis.*—Lastly, want of knowledge on the part of the public of the nature of the disease, of the measures needed for its prevention, and of the precautions required to limit its spread is a factor of importance as explaining the great prevalence of tuberculosis in Ireland. Want of knowledge brings carelessness, indifference, and in the end even apathy.

Having tried, therefore, to show why tuberculosis is still so prevalent in Ireland, and remembering that it is an infectious disease due to a bacillus which may enter the body either through the pulmonary system by being inhaled or by the alimentary tract by being swallowed, and occasionally through a skin wound, what steps should be taken to combat the disease in Ireland?

Practical Suggestions for the Prevention and Treatment of Tuberculosis in Ireland

1. The starting point for dealing with all infectious diseases or pestilences is notification, and in my opinion this must be made compulsory in the case of tuberculosis all over the country. In no other way can we know where the disease exists or what stage it is in, and unless both these facts are ascertained how can any attempt be made to deal with it from a public health point of view? Nothing seems more incongruous than the prompt care that is properly taken to cut short an outbreak of small-pox, typhus fever, or spotted fever in Ireland, and the utter apathy displayed in dealing with an infectious disease like tuberculosis, whose victims are so immensely more numerous than those of all the other infectious maladies combined. Compulsory notification is the first and most essential step in the anti-tuberculosis campaign.

2. When by notification we know where the disease is, our next duty is to pursue in Ireland, as is being done in every country where the death-rate from tuberculosis has fallen, the institutional treatment of pulmonary phthisis, especially of those advanced cases which are so ill as to be unable to look after themselves, and who, in the interest of the healthy members of the household, must be removed, just as cases of typhus fever are in Ireland and as advanced cases of leprosy are isolated in Norway. Separate wards could be arranged for these advanced "open" cases, which are more dangerous the nearer they come to the end, in the union hospitals, where they would be so much better attended and nursed than at

home. As we know that pulmonary consumption is mainly spread by infection from a tuberculous patient, the placing of such a person in a hospital or an infirmary releases his household from its principal exposure to infection, but further by reducing anxiety and worry it indirectly improves the health of the family. In Ireland, if we are to stamp out the disease, the institutional (that is, by hospital or infirmary) treatment of advanced cases of pulmonary consumption must be done on a scale not hitherto thought of, and such treatment must be made attractive. If it is absolutely necessary, then there should be fresh legislation declaring tuberculosis an infectious disease; but even without waiting for this the Irish Local Government Board might follow the example of the Local Government Board of Scotland, which took the bold and independent course on March 10th, 1906, of issuing a circular (Public Health, No. 1, 1906), in which it was laid down that tuberculosis of the lungs or consumption was an infectious disease within the meaning of the Public Health Act, and that the sections of the Public Health Act applicable to other infectious diseases are equally applicable to pulmonary phthisis, and the obligation resting on the local authority to deal with and control infectious disease was made to extend to pulmonary phthisis.

The provisions of the Public Health Act as to removal of cases of infectious disease to hospital and as to the provision of hospitals are available for dealing with cases of pulmonary phthisis as with cases of other infectious diseases. These provisions, the circular points out, can be adopted in practice to any type of case—incipient cases, where the danger of infection to others, though for the time at a minimum, may suddenly become serious; immediate cases, where the patients, still able to work, may, if uncontrolled, become dangerous; and advanced cases, where the patients, frequently unable to attend to themselves, may be a source of grave danger. With reference to the advanced cases, "the isolation of such dangerous cases,"

says this circular of the Scottish Local Government Board, "is a primary duty of the local authority." When a case of typhus fever, small-pox, or scarlet fever is sent to a union, fever or other hospital in Ireland, such a case must not be removed (being dangerous infectious diseases) whilst so suffering under a penalty of £5, and any person in charge of the case which is thus removed is liable to a similar fine of £5, yet at present an advanced case of pulmonary tuberculosis—the most dangerous of all forms of tuberculosis, and admittedly most infectious—can, if in a union or other hospital, be removed at any time, and can be taken home to spread disease by infection among the family.

For the very early cases, in the hope of arresting the disease, sanatoriums should be erected, and one might suffice for two or three counties. These sanatoriums should be made of some cheap material—say, wood—so as to be burned at times, and not of costly brick or stone, and the cheaper they are the better, if only efficient in other respects. For those intermediate between the early and the advanced cases who are able still to be at their work, but too advanced for sanatorium treatment, the greatest efforts should be made to instruct them (and indeed the whole people) as to the danger of tuberculosis and how much they can do by carefully disinfecting their expectoration and by not indulging in the filthy and dangerous habit of spitting, which should be made an offence punishable by a heavy fine. Everything that tends to educate the people of Ireland as to the danger of tuberculosis, such as lectures and exhibitions—like the one that is here—is to be encouraged, and I believe the visits among the poor in order to instruct them as to what is now known in regard to tuberculosis (especially as to cleanliness, sleeping in a room by themselves, and the treatment of the sputum) by the members of the various branches of the Women's National Health Association of Ireland will be of enormous aid. In the larger towns a dispensary for tuberculous patients should be instituted.

3. We must educate the people more and more as to the importance of keeping their houses clean and sanitary, well ventilated, not overcrowded, and so situated as to be properly lighted by the sun, and they must be taught what measures they can adopt to prevent the onset and spread of the disease. In other words, we must teach the people that they themselves have it in their own power largely to control the disease.

4. Temperance in all things should be inculcated, as well as the use of nourishing, properly-cooked food, and the laws of hygiene and temperance should be taught in the primary schools, which should be medically inspected.

5. As to meat, every person, rich or poor, should have a guarantee that all meat used by him has been inspected, and the veterinary inspectors, in my opinion, should be State officials. There should be public abattoirs or slaughter-houses, and all private ones should be abolished. The same type of inspection of meat should prevail in town and country.

6. Considering the teaching of the recent report of the Royal Commission appointed to inquire into the relations of human and animal tuberculosis, all cows with tuberculous disease of the udders should be forthwith slaughtered, and those that react to the tuberculin test should be branded. The control of our milk-supply is so important that I believe it will never be managed rightly until the State takes it under its care, the regulations for inspection of the dairies (medical and veterinary), and for the clean production, conveyance, and distribution of milk being enforced by experts responsible to the State. It is time the truth was realised that the conditions which maintain health in the cows are very similar to those which we advise for the human race—that is, fresh air, proper ventilation, sunlight, suitable food, pure water, and cleanliness. The Department of Agriculture and Technical Instruction for Ireland and the various agricultural shows and societies, I trust, will unite with the Government in devising means for getting rid of tuberculosis in animals. I admit all these

measures I have suggested will cost money, and it is clear compensation for loss of cattle will have to be paid; but are we really to speak of money when, on the other hand, we contemplate almost 12,000 lives lost annually (with 120,000 ill) through a disease which science and experience show us is preventable? What money has been expended freely to stamp out cattle plague, foot and mouth disease, pleuro-pneumonia, glanders, swine fever, &c.? Are human beings of less value? To those who think that to rid Ireland of the white plague is an impossible task I reply in the words of the Spanish proverb in Don Quixote—"The beginning of health is to know the disease." We are now thoroughly acquainted with tuberculosis as we never were before, and the experience of other countries shows what could be done in Ireland by combined effort. We are no longer in the doubtful position of the sailor of whom Ovid writes:—"Hope it is which makes the shipwrecked sailor strike out with his arms in the midst of the sea, even though on all sides he can see no land."

> "Haec [spes] facit, ut videat cum terras undique nullas,
> Naufragus in mediis brachia jactet aquis."

We now see other lands where years ago tuberculosis was far more prevalent than with us. They have since largely got rid of it. Why can we not profit by their experience and follow their methods?

I rejoice to know that the public of Lurgan are joining the rest of their fellow-countrymen in this glorious campaign to free our land from a plague that too long—largely owing to our want of education—has prevailed among us; but now that our mothers and our wives and our sisters have been awakened—thanks to the splendid efforts of one of the ablest, most benevolent, and large-hearted women that ever lived, Her Excellency the Countess of Aberdeen—we are all full of hope that a better time is in store for our beloved country, and that the cloud and the stigma that hang over Ireland at present for her high mortality from a preventable disease will in time be completely removed.

SOME ASPECTS OF THE TUBERCULOSIS PROBLEM

By DR. LAWSON, M.A.; Medical Superintendent, Nordrach-on-Dee Sanatorium, Banchory, N.B.

HIS EXCELLENCY THE LORD LIEUTENANT in the Chair.

WITH the single exception of cancer there is no subject of medical interest which has aroused and engaged the attention of the members of the reigning houses of Europe to the same extent as tuberculosis. When a loyal people wished to mark their sense of appreciation of the special occasion they raised a sum of £100,000, which they handed over for acceptance to their king to commemorate the completion of twenty-five years of his successful reign; and King Leopold applied that money to the founding and endowment of a Sanatorium to deal with tuberculosis. The Czar of Russia, the Emperor of Germany, the Emperor of Austria, and the Queen of Italy have all, at different times, lent the weight of their exalted positions to further schemes and measures which had for their object the limitation of tuberculosis in their own lands. And in 1898 our own King, whilst still Prince of Wales, presided over what was the first meeting of the National Association formed for the same object. And at a later date when, through the munificence of Sir Edward Cassels, our King was presented with a sum of £200,000 to be devoted to any charitable object which he might choose, his Majesty was graciously pleased to devote the whole of that sum to the founding and endowment of a sanatorium for the treatment of consumption. The subject which has engaged, and continues to engage, the attention of the members of the ruling houses of Europe is one which we may very profitably consider this evening. For the purpose of

lucidity it is convenient to adopt question and answer method of presenting one's facts. And the first question I venture to put is—What is tuberculosis; what is consumption? The answer comes that tuberculosis is a disease which is caused by the entrance into the body of the tubercle bacillus. The tubercle bacillus may enter in various ways. It may enter through an abrasion in the skin; it may be taken into the body by the air which we breathe; it may pass into the system with the food which we eat. But no matter how it gains access to the body it may set up there divers symptoms. Thus it may bury itself in the skin, in which case we recognise tuberculosis of the skin, or, as it is better known, lupus. Or electing to go further afield, the organism may choose to exert its nefarious influence upon the nervous system, and when it does so, it produces a variety of symptoms which medical men at once recognise and designate by the name tubercular meningitis. But when, as is more commonly the case, it chooses a vital organ and selects for itself a focus in the lung, then we term it pulmonary tuberculosis, or, in common parlance, consumption. What is tubercle bacillus? Popular imagination has figured it as a creature of repulsive and repellent appearance, something such as this (illustrates with a slide). But when I direct your attention to the next slide, prepared from a sample of human tuberculosis, you will recognise in the rod-like forms a very much simpler outline than popular imagination had depicted. Now, when the bacillus gains an entrance into the body it sets up disease in virtue of a peculiar property which it has of multiplying itself with enormous rapidity, and whilst doing so withdrawing from its surroundings nourishment for that purpose. In this slide (indicates), which is made from a small tubercle in the lung, each of these small dots represents a separate tubercle bacillus, and so great has been the amount of nourishment withdrawn from that small patch that you observe the centre has completely broken down and become diseased. That is the most common manner in which tuberculosis oper-

ates. It is well that we should try to obtain a clearer idea about this bacillus than we have obtained up to this stage, and in order that we may do so I next direct your attention to its dimensions. A medical student asked at his final examination "What is the size of a tubercle bacillus?" would, no doubt, very rightly reply that it is the 2400th part of a millimetre in length. That would appear to be a very wise, as it would be a very accurate, statement, but that would not convey any idea to the average mind. The next slide which I show you is a slide representing a very common and familiar household implement—a No. 5 sewing needle. It is enormously enlarged here. Now, if we imagine for one moment that a tubercle bacillus were to choose so improbable a place to rest upon as the point of a No. 5 sewing needle, there would be no danger of it falling off for want of room. Indeed, so minute is the bacillus in its dimensions that on the point of the needle it would find ample accommodation to satisfy its most extravagant social aspirations, for it could have no less a number than 900,000 of its friends accommodated alongside it on the point of that needle. Or, if electing more artistic surroundings, it were to choose the surface of a penny stamp, it could, to a still further degree, indulge these social proclivities, because on the surface of a penny stamp there is room for no less than 400,000,000 of its friends alongside it, or a larger number than the population of the whole world. From these illustrations you gather that it is a creature of extremely minute proportions.

Many people believe that the tubercle bacillus is an animal; but that belief is entirely erroneous. It is not an animal, but it is a very low form of vegetable life. Enterprising in its habits, there is no corner of the globe so remote that it has not travelled to it. Ubiquitous in its distribution, there is practically no civilised country in the world in which it is not to be found. The mortality from its ravages in Russia amounts to one in four of all deaths, in Germany to one in six, and in England

and Wales to one in seven. At one time it was thought that the negro was immune to the ravages of this animal creature; but when the white man took into the black man's country the dubious blessings of civilisation he took with him, and left as a permanent guest, the tubercle bacillus; and at this time the ravages among the black races exceed those among the white races. With regard to the human subject, it is very impartial in its attentions to the two sexes. Indeed, it is capricious, for at one time whilst the largest number of people who were affected by the action of the bacillus were of the female sex, latterly it has changed its attentions, and at the present moment it appears that there are more men who become attacked by this organism than women. It is an appalling fact—I think appalling is not too strong a word to use—to realise that of all those persons who died in Britain during the past year, of the workers and the producers between the ages of fifteen and forty-five, over one-half died of pulmonary tuberculosis. That it places a heavy embargo upon human life in this country will be realised when I tell you that no less a number than 70,000 of our fellow-countrymen in England and Wales succumbed last year to pulmonary tuberculosis. 70,000 is a number which we mention glibly; I do not know that we quite appreciate what it means. You will recognise here the picture of an ordinary watch (indicates). The hands point to six minutes past the hour. 70,000 means that every six minutes—hour in, hour out, day in, day out, year in, year out—some one dies in our midst of tuberculosis of the lungs. The facts of the Boer War are within the recollection of all. We recall the patriotic fervour which it aroused, the suspense, the alternating hope and fears, and we recall the termination of that war. One fact will always be remembered in history—the fact that of our countrymen there fell to the bullets of the Boers no less than 10,000 men. And yet I do not know that we quite realise that during that time—the time of the Boer War—we were engaged at home in a much more momentous, a much more tragic, fight—the fight with our

relentless enemy the tubercle bacillus, and that in this domestic warfare we lost an enormous number of our countrymen and countrywomen—a number before which the losses sustained in the war pale. For whilst 10,000 lives marked the extent of our losses in the foreign field we lost at the same time at home from pulmonary tuberculosis 160,000 persons, or sixteen times as many as fell in Africa. This (indicates) represents diagrammatically the relative losses which took place during the South African War—on the right hand side the losses on the battle field, on the left hand side the losses by the bedside at home. This (indicates) represents by a time record the relative number of people who are contracting the disease. We sent out to Africa an army of which we were proud, an army of 250,000, well-equipped for the task to which they were set. I do not know that it is quite realised that at home we retained an army which considerably exceeded that which was fighting on the African veldt—namely, an army of between 300,000 and 400,000 people who were fighting in their own bodies the attacks of the tubercle bacillus. Vereeniging brought to an end the losses of that minor war, but the losses of the major war continue to be enacted from day to day at our bedsides and in our homes with hardly diminishing intensity. If it were possible for me to bring within the scope of these grounds all those who are destined to die of pulmonary tuberculosis in Britain between this evening and the 16th of October, 1908, and if it were possible for me to get them to join hands, and the procession so formed to pass out of these grounds and to proceed in a westward direction, before the last member of that procession had left these grounds the first member would have travelled a distance of nearly forty miles, and would be beyond Monasterevan. And if, in the same way, it were possible for me to get together those who are destined to contract the disease of pulmonary consumption in Britain during the next twelve months, and to deal with them in a similar manner, we should then have a continuous and mournful procession of persons which,

beginning at Dublin, would go on to Limerick, pass down to Waterford, and back again to Dublin without any break in the solemn line. This, your Excellencies, gives us to a certain extent an idea of the ravages which this disease is causing in our midst.

But if we are to attain a full conception of the extent of the damage which is being done we must not content ourselves merely with a consideration of the numerical incidence of the disease. There is another point to which we must direct our attention. This very simple diagram (indicates) is designed to fix in your memories two figures. On the left side you observe the figure 10, on the right side you observe the figure 33. Ten is the average age of death of persons dying of the notifiable infectious diseases—scarlet fever, enteric, diphtheria, and such like. There are eight of them in all. Thirty-three, on the other hand, represents the average age at which a person dies of pulmonary tuberculosis. I hope no one will think I speak slightingly of children in what I say with regard to the figure 10. I have children of my own. But we must bring an unbiased scientific attitude of mind to the consideration of those figures. What does 10 mean? It means a period when the individual is a burden to the State. The child is not a producer. The State is made richer by the removal of persons of ten years of age. At ten a person is a parasite, so that when a child of ten dies the State loses nothing, but rather gains. We spend millions every year endeavouring to save life at ten. We have a whole machinery for dealing with these infectious diseases. What about 33? Thirty-three represents a man approaching the zenith of his powers, physical and mental. It represents a producer, a wage earner, a taxpayer, it may be the supporter of a wife and children. A healthy man at 33 represents the greatest asset which the State can have, because there is no asset so great as a healthy population. Tuberculosis removes a man at 33. Therefore, the damage which this disease is doing to the country, the loss which it is imposing upon the country,

is important out of all proportion when compared with that caused by other infectious diseases to the numbers represented by our mortality lists. There is one other point to which I would direct your attention before leaving this side of our subject. It is the financial loss involved in the deaths from pulmonary tuberculosis. The figures which I have given you are the figures based upon an England and Wales calculation. I have not given the Irish figures, because there is considerable difficulty in arriving at what is the average wage earned by a man of 33 in Ireland. But there is a consensus of opinion as to the average wage earned by a man of 33 in England and Wales. A man of 33 years of age in England and Wales earns, roughly, £1 10s. per week—that is, he earns £75 each year. In twenty years he would earn £1,500. The insurance actuaries tell us that if tuberculosis had not stepped in and put an end to a man's life at 33 he would, in all probability, have lived another twenty years. Therefore, a single death from pulmonary tuberculosis taking place in the case of a worker means a financial loss to the nation ultimately of a wage-earning capacity of £1,500. But we are not dealing with a single individual. We are dealing every year with a loss of wage-earners amounting almost to 40,000. Therefore, upon that calculation, the losses which the nation is sustaining ultimately in wage-earning capacity—the losses of one year—mean a sum to England and Wales of not less than £60,000,000. By this illustration I hope I may have succeeded in bringing to your minds some appreciation of the extent of the loss not only in lives but in money which pulmonary tuberculosis is causing to this nation at present.

It had been my intention to deal particularly and fully with the case of Ireland. But I had the pleasure, two evenings ago, of listening to a most excellent address by the Registrar-General of Ireland. I feel that the subject was treated at that time with a fulness and with an exactness and an ability to which I cannot hope to aspire; and the fact that it has been done therefore removes the

necessity for me to attempt to go into figures which I might have some difficulty in dealing with. But I cannot altogether pass over this part of our subject, and, therefore, in the very briefest manner I propose to direct your attention to the two or three outstanding facts which mark out Ireland in this respect from other nations. We know, for instance, that the deaths in your towns, Belfast and Dublin, are higher than in the towns of the neighbouring countries—Glasgow, London, and such like. With the details I need not trouble you. The condition of the death-rate from pulmonary tuberculosis in Ireland as compared with other countries is deplorable. Indeed, the death-rate is one of the highest of any civilised country in the world. I give you here only one illustration :—The lower black portion of this diagram (indicates) represents the death-rate from pulmonary tuberculosis in England—12.3; the upper line, which is entirely black, represents the death-rate in Ireland (22.3), in 1904, or approximately twice as high. Therefore, Ireland occupies an altogether unique and unenviable position in this respect, and if I may be allowed to say so, in regard to a disease which is highly preventable—a position which is not altogether above reproach. There is another fact—namely, that not only does Ireland possess a very high death-rate, but so far is it from showing any improvement, or any tendency to improve, the tendencies are all the other way. This diagram on the left hand side here (indicates) is designed to show the tendency of the death-rate in England. You observe there is a tendency to fall here. But in Ireland the condition is altogether different—the tendency is to rise. Let me explain in this connection the significance of this diagram. Let us assume that the circle upon the left side—that portion which is shaded black—represents the condition of things fifty years ago, with the mortality, for the purpose of argument, let us say of England, Ireland, and Wales all at the same level. The circles to the right hand represent the condition of things fifty years afterwards—that is, in Scotland during the fifty years a fall

has taken place in the mortality from tuberculosis shown by the small shaded surface amounting to 48 per cent.; in England a fall has taken place of 52 per cent. You observe the condition is quite the opposite in Ireland. Instead of falling in fifty years the mortality has risen over 20 per cent. So that if you take the contrast between England and Ireland in this respect for fifty years the comparison is all against Ireland to the extent of over 70 per cent. I have taken the trouble recently to go into the matter of what attempts are being made in Ireland to meet this loss. I pass over for a moment the fact that pulmonary tuberculosis is not notifiable. I pass over the fact that there is no such thing in Ireland as a properly regulated tuberculosis dispensary such as is to be found in other countries. I ask your attention for one moment only to the accommodation in beds which is available in this country to meet the demand. It is calculated that to meet the demand properly you would require nearly over 20,000 beds. What have you got? You have at present, in what is available and what will shortly become available in Belfast, 410 beds. The small square in the centre (indicates) represents what you have available; the whole figure represents what you require. The picture which I have attempted to draw is, I am afraid, a somewhat mournful one, and I should not like to think that you should leave this building with the feeling that the outlook is perfectly hopeless, because it is very far from being so. There are solid grounds for hope—hope based not upon the wish that things may be better, but hope based upon experience gained—the solid and impregnable rock of human experience—in two directions. Professor Osler a few days ago referred to what has been accomplished in this country in stamping out preventable and infectious diseases. I do not propose to go into the subject with which he dealt. But for one moment I venture to ask your attention to one subject—namely, the subject of leprosy. I do not know that it is generally known that at one time leprosy was in all probability more rampant in these islands than tuberculosis

is at the present moment. About the fifth century the first special hospital was founded at Waterford, in Ireland, for dealing with the cases in this island. It took more than a thousand years to stamp out the disease, and in 1767 the last hospital for leprosy cases was closed. It was much the same in England. If we refer to the various leper windows in the country we have there the reference to the time when leprosy was so rampant. We know, for instance, that St. James's Palace in London was originally a leper hospital. Ireland is not without its traces. I refer only to one. Most of us know Leopardstown in another connection. But Leopardstown originally attained publicity from the fact that it was a lepers' town—a small circle in which lepers were isolated. I merely mention this disease in passing in order that I may bring to your recollection the fact that the people of this country, faced with a problem of no greater difficulty than the present problem with which they are faced, when they tackled it resolutely succeeded in solving that problem. And upon that experience there is ground to go upon, ground for encouragement in starting to deal with the present problem. There are two directions in which experience in this country and in the Continental countries has shown that this disease may be successfully combated. Roughly speaking, they may be divided into general and into local operations. The general method of dealing with it consists of all the methods of improving one's sanitary surroundings, improving the housing, improving the condition of the working classes. That has been going on in England for a very considerable time now, and we see that from 1838, as the result of the general improvement of the conditions under which the people of the country live, the mortality from phthisis has declined from 38 down to 15, equal to a fall of 60 per cent. But there were signs more recently that the improvement to be expected in that direction was coming to an end; and, therefore, in England for the last few years they have been proceeding to adopt in addition various local measures specially de-

signed to deal with the disease. The tubercle bacillus, to come back to our friend, is a creature of very curious habits. Its habits have been described as burglarious. Like most creatures whose deeds are evil it prefers darkness rather than the light, and it has been found that one enemy of the bacillus which is efficient above all others in exterminating it is bright sunlight. Therefore, in the matter of architecture in future, we must regard as past the time when small window spaces are put in cottages, and when draughts are looked upon as a sort of never-ending evil, and we ought rather aim at putting in large windows, have them easily movable, and let the sunlight in.

But if sunlight is important, there is another element with which we have to deal, which is almost more important. I refer to the air which we breathe. There are many elements in the air which may be injurious, which may further the propagation of tuberculosis in various ways. I need not detain you with these. I only mention one. Tuberculosis, it seems, for the most part is got by our taking into our bodies, through the air we breathe, a tubercle bacillus. How does it get there, it may be asked. A person suffering from pulmonary tuberculosis, as our law at present stands, shares with the rest of the members of a free community the right to expectorate on the street as much as he likes. Unlike the expectoration of a healthy person, the expectoration of a person suffering from consumption is dangerous in the very highest possible degree. The expectoration gets carried into the homes by dresses and otherwise. It dries; these organisms pass into the atmosphere, and eventually they become messengers of death to the persons who inhale them. He would have been a bold man who would have attempted to deny to the American ten years ago what he regarded as his inalienable right to expectorate at large. The American expectorated everywhere and at all times; but, with the growth of public opinion against the habit, the law of the land stepped in. At first mild measures were tried, such as merely

suggestive notices, stating, "Gentlemen, do not spit," others "Must not." That was not quite sufficient for the average American, so it was found that something more persuasive had to be introduced. Then it came about that one travelling in America some years ago met notices such as this:—"Notice—The Brooklyn Rapid Transit Company respectfully call attention to the fact that spitting in cars is forbidden by the Board of Health of the City. Any violation of this section of the Sanitary Code shall be treated and punished as a misdemeanour, and the offender shall also be liable to a penalty of 250 dollars. By Order." So that to continue this luxurious amusement ultimately came to be a very expensive matter. Some may think that the Americans were too enterprising. But there are centres in these countries where these methods are being adopted. Convictions have taken place in Glasgow within the last two years for expectorating on the streets. In London the County Council passed a local enactment making it penal to expectorate in public places, but by a curious anomaly they left out the church, so that while one could be fined for expectorating in a music-hall or a theatre one might in a church indulge his vicious habit to his full content. I think I have said enough to show that everything should be done to promote amongst the public the growth of a feeling that expectorating in public is not only a filthy habit—an offence against one's finest feelings—but that it is in addition a source of danger to the community, and as such ought to be stringently dealt with by the authorities.

There is another matter which must yet call for notice. I refer to the food supply. It is somewhat odd that the animals which are most liable to tuberculosis are those animals of which we are most fond. The guinea-pig is a domestic pet, and there is no creature so liable to the ravages of this disease as the guinea-pig. The ordinary fowls which we buy contract tuberculosis, and so on I might multiply them. But I introduce this subject to refer particularly to one point, a very, very important

point—namely, the milk supply of our communities. Some years ago her late Majesty, having had the matter of the danger of the milk supply brought under her notice, gave directions to have the cows in the Royal byres examined. This represents the result of that examination. Although there had been no previous ground for suspecting the herd, it was found that no less than thirty-four out of the forty cows were suffering from tuberculosis. The amount of tuberculosis in cattle throughout the country is enormous, and something ought to be done by municipalities and others to ensure that when the people buy milk from a public source they buy pure and wholesome milk, and milk which is altogether untainted with disease.

I come now to another point—namely, the matter of notifying pulmonary tuberculosis, including it, if you like, amongst the notifiable diseases. This proposal so far has not made very much headway in this country. In Sheffield and in some other places consumption is compulsorily notifiable. The proposal is mainly of interest because of the objections which it has raised. For instance, it has been objected that if you include consumption amongst the notifiable diseases and deal with the patient you impose a hardship upon him. That is an objection which was urged against scarlet fever, measles, diphtheria, and all the others at one time, and it is an objection which time has proved to be altogether out of proportion to the advantages to be gained by the notification. A more real, solid objection to notification is that notification to be efficient would imply the authorities providing places to which they would remove patients who were infected. In this connection I ask for a moment your attention to these figures. They are the figures taken for three consecutive years from the mortality statistics in Ireland. We find that in three years there died in Ireland from diseases which are notifiable a little over 9,000 persons, and we find that during that time nearly four times as many died from the unnotified disease, phthisis. In that case is it not right

and proper that communities should face whatever cost is necessary to deal with these 28,000 more valuable lives now that the facts are really being understood? Still, it might be possible to adopt notification without adopting any compulsory powers to remove the patient, and that might be done to start with. It was done in New York, and this diagram (indicates) illustrates the benefit which was derived from that. On the one side, 1894 to 1898, you find various dots which represent houses in which phthisis was present, and on the other side you see represented the conditions present in five years later. If you confine your attention to the line near the left hand side of this diagram you will find there is an enormous increase there in the number of dots. Notification there brought out the fact that the contagion was very rapidly spreading from house to house in that year. The burden of this argument is this—compulsory notification of phthisis ought to be introduced at present, for this, if for no other reason, to enable the public to obtain reliable information as to the extent of the disease. Very briefly, educative measures ought to be undertaken such as we now have had under the leadership of her Excellency. There ought to be dispensaries situated in the towns, dispensaries to which anyone can go who is suffering from tuberculosis, where patients can get information how to deal with the disease, how to protect their friends, and what to do, information such as is to be got from a diagram of this kind (indicates), showing how a bed ought to be placed near a window. There ought to be an all-round educative campaign going on such as happily has been recently started and is now being conducted under the auspices of her Excellency and this Association.

I have occupied your time a long while. I do not propose to occupy it much longer. But I should like to draw your attention to the state of extent of special accommodation provided throughout the country for pulmonary tuberculosis. It is a French axiom that consumption is a disease from which the wealthy sometimes

recover, but one from which the poor never recover. At one time there was a certain degree of truth in that saw, but it no longer holds. The wealthy at present can command all the advantages of special treatment for this disease. They can select their own institutions, and to that extent they stand a good chance of recovery; but it is held that it is a public duty in health matters to place within the reach of the poor man all those advantages which are necessary to secure his return to perfect health. This has been recognised in other countries and has been adopted, and any scheme taken up in this country to deal with tuberculosis amongst the poor would require, in order to be efficient, to include two classes of buildings. First of all, there ought to be buildings specially designed for advanced cases to take care of the dying. There ought to be other buildings in which less advanced cases may go with a reasonable prospect of recovery. The objections which have been raised to the provision of special buildings throughout the country one finds are very much the same no matter where one goes. There is a similarity about all the objections. The first objection one hears is this—it is an objection of the wealthy. The landed proprietor says—"If you put down a sanatorium for infectious diseases on my land you lower the value of my property." That may be perfectly true. It is, I believe, perfectly true. But that town is poor indeed which has not, within twenty miles, a single proprietor who is animated by sufficiently altruistic and philanthropic motives that he is unwilling to make some sacrifice in so great a cause as this.

It has been urged that in establishing special sanatoria for treating consumptive patients we establish focuses of disease which would spread contagion in the surrounding districts. Nearly thirty years ago a sanatorium was founded in Germany at a place called Falkenstein. It is a large sanatorium; there are 175 beds and seven resident physicians there. The report which we get from the village of Falkenstein to-day,

with the residence practically in its midst of this tremendous congregation of infectious disease, is that there is less tuberculosis in Falkenstein now than there was thirty years ago. And if one may be permitted to refer to one's own personal experience I would say that during the first five years of my work, when I was in daily contact with over fifty consumptive people, living the same life as themselves, feeding along with them, passing my time with them—and I had a staff of over fifty under me living in exactly the same conditions—there did not occur a single case of communication of tuberculosis to any member of the staff. Now if, in the light of reference, the danger inside a well-regulated sanatorium is practically nil, then the argument that such a sanatorium acts as a source of danger to people living miles away from it absolutely falls to the ground. It has been objected that if you put up such a sanatorium people will object to enter it. About a year ago I took the trouble to write to nearly twenty sanatoria for the poor in England, asking their experience upon that point, and there was an almost unanimous opinion that that objection was not one which could stand in the light of experience, that people were eager to get in, were waiting to get in, and that their trouble was that they could not admit all who wanted to come in. The final objection which one hears advocated in a district where it is proposed to adopt these remedial measures is that it is a matter of experiment. "Why experiment upon us?" it is said. "The value of sanatoria has not been proved. Let someone else try it, and let us satisfy ourselves by putting up healthier houses for the poor."

Your Excellencies, ladies and gentlemen, the matter of the value of sanatoria in the limitation and the control of consumption has long since passed beyond the pale of experiment. In 1797 we had the first references in modern literature to the subject—a Highland physician carrying on the treatment in the north and writing to his friends in London. In 1747 George Bodington started an open-air sanatorium in Warwickshire, but obtained

an unfriendly reception alike from the profession and from the public, and although it was beyond all doubt that he was obtaining good results he was eventually driven from his home, and, strange irony of things, what had been erected as a sanatorium was compelled eventually to do work as a lunatic asylum. But the good work which Bodington was doing there was not altogether lost. The seed fell into fruitful soil when it passed into the mind of Hermann Brehmer, of Germany. Brehmer believed in the value of sanatoria, and he decided to make a start in Germany. He was met by all the opposition which wealth and influence could produce. He eventually, however, succeeded in obtaining special Government permission to make a trial. He worked on quietly for twenty years. This is the sanatorium (indicates) which Hermann Brehmer built at that time. When he published his results in 1872 he proved beyond all contention the curability of phthisis by open-air methods. At a later time the idea came back again to our own country, and it is now received with all that respect which it is entitled to be credited with in so far as the results which it obtained more than justify its adoption. Insurance companies are not usually actuated by philanthropic and beneficent motives in their methods of conducting business. It is a significant fact in this connection that two years ago thirty-seven insurance companies in Germany combined together to allocate a capital of two millions sterling in order to erect and equip sanatoria to deal with the cases of phthisis occurring amongst their own clients. They, at all events, after a most thorough investigation satisfied themselves that as a pure financial investment it was better for them to cure consumption than to subsidise it. I have almost finished. If a municipality is not prepared to face the expense of putting up the two classes of buildings let them start with a home for the hopeless cases. What would be the advantages of such a home? The advantage to the patient would be that he would have that comfort and repose and care which such an institution

would afford. He would no longer be tormented with the consciousness that in his declining days he was a burden to the friends who were less able to support that burden than when he was working. What would be the advantages to the friends? The advantages to the friends would consist in this, that there would pass from their midst a source of danger, an unwitting source of danger, in one who, if left at home, would produce hourly millions and millions of organisms which would become a source of danger to themselves. For it is a part of the strange irony of the position of the consumptive of to-day that only too often the only thing which he bequeaths to those who have tended and cared for him in his suffering is a legacy of the disease. And in removing him you would be conferring upon him and upon them alike a boon of the highest possible value.

His Excellency said: I am sure the general sentiment will be that we have listened to a most remarkably able and striking discourse. Our feelings of appreciation and gratitude will be formally expressed in a short time. But, meanwhile, there will be now an opportunity for discussion or for addressing questions to Dr. Lawson by any who wish to gain further information. Incidentally, Dr. Lawson has alluded to his own personal experience—he having been for a long time at the head of a sanatorium. I, perhaps, may be allowed to take a lead in asking if he has any further observation to make in regard to the comparative expense of single buildings or a combined building in the case of sanatoria set up, for instance, for the use of persons not in wealthy circumstances, or put up by public authorities.

Dr. Lawson: Your Excellency, it gives me great pleasure to answer that question. Most of the facts that we have in that connection come from Germany, where their system of insurance enables them to deal with such matters very fully. And the general opinion is that for municipalities the better system is what is called the Châlet system—separate buildings scattered

throughout the grounds. For people who are wealthier and better to do there are disadvantages, but for the poorer classes it is generally admitted that it is the more economical and desirable plan in every way.

SURGEON LENTAIGNE: Your Excellencies, ladies and gentlemen, I beg to move a hearty vote of thanks to Dr. Lawson for his kindness in coming here to-night and for the eloquent and lucid address which he has given us. I feel that I can hardly do credit to it by anything I can say. He has shown us that in England and Scotland a campaign such as has been organised here now is very badly needed. And how much more is it needed in this country—this poor country where the losses from tuberculosis are practically twice as great? He has shown us also what may be done as far as the sanatorium question is concerned to prevent this disease, and also something of what may be done to cure it. He has told us of some measures that may be required which, I hope, this campaign that is now so well started will bring about in this country. I now beg to propose this vote of thanks, believing that you will all heartily agree with it and vote it to Dr. Lawson unanimously.

MAJOR COURTENAY said: Your Excellencies, I have very much pleasure in seconding the cordial vote of thanks to Dr. Lawson for the very interesting address that he has delivered to us. I think there is one particular point that he alluded to in the last part of his lecture to which we want attention in Ireland, and that is, that our first effort should be to deal with bad cases. Nobody who has had anything to do with any of the hospitals in Dublin or with the hospital at Newcastle can fail to be aware of the difficulty there is in aiding such cases. There is very little accommodation for them. They cannot be admitted into the clinical hospitals; they only do harm there, and they cannot be cured. The number that can be taken into the Hospital for Incurables is a mere drop in the ocean. At Newcastle our results are unfavourably affected by the number of indifferent cases that are sent in. They try to take only

curable cases. But a certain number come down who cannot be cured, and they are occupying useful places—the places of an entirely different class of patients. Therefore, I do hope that we shall take to heart the suggestion of Dr. Lawson that we should try and provide accommodation for the bad patients. I have very much pleasure in seconding the resolution.

His Excellency: I am sure that we must have felt that had it not been for the fact that we are, I trust, commencing a new era in this movement, there would be much to cause melancholy in such a statement as has been given to us to-night. But Dr. Lawson himself felt that anything of gloom would be quite inappropriate—hopefulness now being the keynote. Dr. Lawson, in replying to this motion, might kindly say a word or two more as to the proportion of cures estimated—the proportion of cures possible or obtained thus far, so as to bring in a further element on the brighter side. We should look upon this movement as one of hope and glad anticipation, because there is good ground for believing that there will be some vast change for the better within a comparatively short time. I now beg to put to the meeting a cordial expression of thanks to Dr. Lawson for his able and helpful lecture.

The vote of thanks was passed with acclamation.

Dr. Lawson, in acknowledging the vote of thanks, said: Your Excellencies, ladies and gentlemen, it is altogether inappropriate that at this late hour I should detain you much longer; but I welcome the opportunity which his Excellency has afforded me of referring to the latest figures which have been published by the insurance companies of Germany. I am not able to go into them fully from memory because they are somewhat complicated. There is this further difficulty that the word "cure" is an extremely elastic term. We must define what we mean by cure. Do we mean that a man is sufficiently restored to go back to his work and work for a year or two and possibly break down? Are we to deny to the man who works for five or six years and then

breaks down the term "cured"? I think the only workable plan is that adopted by these German companies; and they use not the word "cure," but "economic cure." By "economic cure" they mean a sufficient restoration to health to enable a man with a fair prospect of doing good work on returning to his old occupation. Accepting that as the meaning of the word "cure," the later figures issued by the German insurance companies are extremely gratifying. It seems now that they are getting there as high as 70 and 80 per cent. of those men who are passing into the sanatoria eventually returned and restored to their work as economic cures. I should like to say that it has been to me the greatest possible pleasure to come here and to address an audience that has given me so courteous and so attentive a hearing. And if it is permissible to interpose one's personal conviction I venture to state that I consider the people of Ireland are at this time singularly fortunate in the send-off which they have received in this movement.

THE ECONOMIC ASPECT OF TUBERCULOSIS

By PROFESSOR LINDSAY, M.D., Professor of Medicine, Queen's College, Belfast.

The Right Hon. the Lord Pirrie in the Chair.

Lord Pirrie said: Her Excellency desires me to say that she had been hoping to be present and to preside on this occasion, being anxious to have the views of one whom she herself describes as an eminent Belfast medical man on the important subject upon which he is to address us; but unfortunately she has had to fulfil an engagement previously entered into in connection with a deserving charity. At her Excellency's request, and with your permission, I find myself acting in her place. I am glad to have the opportunity of identifying myself with the movement of which Professor Lindsay is such an ardent supporter. I feel it also a duty to be here as a large employer of labour and as one who had the privilege of hearing Professor Osler a few nights ago in one of the most interesting lectures I have ever listened to. I thought his appeal was to every individual who was then present, no matter what position he occupied. Employers of labour, and especially those employers who employ women in such factories as we have in connection with the linen trade in Belfast and the North of Ireland, must realise that in addition to paying wages to the workers it will be to their interest to see that all the medical recommendations not only Professor Osler but the other lecturers put before us are carried into effect even to a greater extent than our medical friends advise. I feel particularly gratified to take the chair on an occasion when one of my townsmen is giving us a lecture on a subject which he

has made his own since he went into that profession. I introduce Professor Lindsay.

Professor Lindsay said: Lord Pirrie, ladies and gentlemen, I am very glad to have an opportunity of addressing you upon questions of finance and economics under the presidency of one so well able to form an opinion on these subjects as Lord Pirrie. Lord Pirrie is not only one of our great captains of industry, but he has always taken an active interest in philanthropic movements. We owe to him and to his admirable wife the erection of the Royal Victoria Hospital, of which in Belfast we are so justly proud, and which has more than justified the best hopes entertained by its founders. And now, representing as I do for the moment the North of Ireland on this occasion, I should like to say that we gratefully recognise the lead which Dublin has given us in this great campaign, and in giving that lead Dublin is only true to her traditions. She has always been the nursing mother of medical science, and she has given to medical science not a few of its greatest names. Now, these lectures form a necessary, if perhaps somewhat humble, feature in the work in which we are engaged. That work is very largely educative in character. The facts as regards tuberculosis are fully ascertained. We are not fighting an unknown or a mysterious foe, as, for example, we have been doing in this country not very long ago in connection with cerebro-spinal meningitis. The facts regarding tuberculosis have been fully ascertained. What we need is to diffuse the knowledge and to act upon our knowledge. We want more than a movement of medical men or scientists; we want a great popular movement in this matter. We want general co-operation; we want the aid of women. And the great example set by her Excellency in this last particular, I have no doubt, will have a very far-reaching effect. Now, I say that the facts on this subject are fully known. We know the enemy against which we have to fight—an infective germ widely spread, highly virulent under conditions of uncleanliness, overcrowding, bad feeding, and

bad sanitation in general, but comparatively harmless where good air, good food, and sufficient living space can be secured. Further, not only is the foe well known to us, but the means of fighting the foe are also well known. And now to reduce this point to its greatest simplicity, I think those means are practically two—first, the segregation of the infected, and secondly, good housing, good food, good air, for those who have escaped infection. Now, while I should be loath to put those two elements into competition, believing as I do that institutional or sanatorium treatment of the disease is highly important, yet if I had to choose between the wide adoption of sanatorium treatment, on the one hand, and measures of social amelioration on the other hand, I should not hesitate to choose the latter. And now, we need to cherish in this matter a hopeful outlook. We all know the unfortunate position which our country holds in this regard. Ireland ranks, as you are aware, with Austria, Hungary, and Servia as one of the most infected countries amongst civilised nations. But a hopeful outlook is fully justified by the fact that great progress has been attained elsewhere. We have ample proof that the battle against tuberculosis is a winning battle. We find that England and Scotland in the space of half a century have reduced the tubercular rate by nearly one-half. The great city of New York, known to many of us by personal knowledge, where the conditions for fighting tuberculosis were not very favourable—a city into which is poured day after day people of nearly all nations, many of them in a condition of more or less poverty, and where there was much over-crowding—yet in a period of less than half a century, by well-designed sanitary work, New York reduced its tubercular rate by 40 per cent. And there is no mystery whatever as to how this progress has been achieved. It has not been achieved, to any large extent, by any new methods of treatment, although that may have been a factor. It has been achieved almost entirely, or, at all events, largely, by simple measures of social reform, by improved housing, improved sanitation, by

elevating the people to a higher social level, in all senses of the term. Now, sir, before going any further, I would like to combat two views that are sometimes put forward, and which, I think, do harm as tending to make us acquiesce in things as they are. First, the view that the Irish race is in some special way prone to tuberculosis. Well, if that were so, the amount of tuberculosis in Ireland ought to vary according to the amount of English or Scotch blood, or Irish blood. But is this so? Quite the contrary. Take County Down, for example, one of the most prosperous counties in Ireland, a county where the amount of Scottish blood is very large. We find that County Down suffers rather more from tuberculosis than the average of the counties of Connaught. Therefore, I think that we must not admit that the Irish race have any racial tendency to tuberculosis. And if we do find the Irish race suffers in America beyond the average of other races, I think we should be inclined to blame not exactly their racial characteristics, but rather the conditions of life under which they live in the United States of America. Secondly, the Irish climate is blamed for the large amount of tuberculosis amongst us. Now, I can hardly go the length of my friend Dr. Osler in saying that the Irish climate is "a first-class climate for consumptives." Dr. Osler is a humourist, and it is not the first time in his history that his humour has been mistaken for serious statement. But I will quite go the length of admitting that the Irish climate is not a serious factor, not a large factor, in the incidence of the disease amongst us. What renders the battle against tuberculosis so highly important is the fact that it has an intimate relation to social progress in general. The more we raise the social level the more we can civilise and humanise the people, the more we can educate them in just views of life, in right habits of living, the more shall we succeed in stopping the plague of tuberculosis. The battle, then, that we are trying to fight is more than one for stamping out a deadly disease—it is one for the social betterment of the

people in every sense of the term; and this Exhibition which you have brought together here, and which is so highly interesting, and these lectures may do something—I hope much—to stimulate interest, to excite inquiry, and above all to create that atmosphere of hopefulness and of co-operation which is so necessary for successful effort.

Now, my special subject this afternoon is the Economic Aspects of Tuberculosis. We are entering upon an arduous campaign. It is well, I think, to count the cost; and if that cost proves to be large there are two consolatory reflections which we may make—one that the cost will be only gradually incurred, and second, that the expenditure will be eminently remunerative. It has been well said that nothing is so costly as disease; nothing is so cheap in the long run as preventive medicine. I just pause for a moment to show, if we spend money freely in the battle against tuberculosis, how we shall save in other particulars. We shall save, for example, in connection with our friendly and benefit societies. Tuberculosis is one of the largest items in the losses that these societies incur. We have always to remember that tuberculosis is a disease especially of the working age. It has been found in Germany that 75 per cent. of those who die from tuberculosis are wage-earners. The proportion may not be so high in Ireland. The economic conditions are different; but that is a fact which I think it is well for us to remember. We shall save in connection with life insurance companies. I made some inquiries in the last few days as regards the amount of loss incurred by leading insurance societies from tuberculosis, and I find that about one death in four, or certainly one in five, is due to the disease. We shall save, further, in poor-law administration; we shall save in medical expenses in general; we shall save in the burthens of charity; we shall save, probably, in the losses that are incurred through intemperance; and we shall save largely, I think, in the reduction of national inefficiency. Just pause for a moment to think what

happens in the household amongst the artisan classes when a father and bread-winner becomes subject to tuberculosis. It means very often, in the first place, that the mother has to become a wage-earner. I think probably all in this room will agree with Mr. John Burns that the mother of the household should not be a wage-earner in the ordinary sense of the term. When the father becomes a victim of the disease the mother is compelled often to go out to work, the children are more or less neglected, their health suffers, their education suffers, and social efficiency is thus sapped.

I would ask you, sir, and this company not to be impatient of questions of finance. It has been said that all questions in the long run are questions of money. That, perhaps, is a little sweeping. But, at all events, we do not get very far in any movement before the question of money arises. For example, in war it is sometimes the nation with the longest purse that goes furthest. Fine art production, I believe, has some relation to the money market; and I understand that it is also the fact that the marriage rate has some relation to the price of wheat. I do not propose this afternoon to overwhelm you with a mass of figures. I shall rather deal with the subject in its large outlines. I cannot produce to you in all cases very exact data, but I promise not to overstate my case. I undertake that when I give you figures I shall be well within the mark; and I do not think you will be far wrong if, in some cases, you multiply my figures by two. The economic aspect of disease is a subject of vast importance. The economic aspects of tuberculosis are of vast importance. We are in the habit of regarding disease generally from the medical point of view and from the humanitarian point of view. We do not stop usually to reflect upon its economic importance. And yet disease is one of the most wasteful of things. It is wasteful not only of human happiness, but it is also wasteful of working power and of national efficiency. The diseased are the unfit—unfit to help themselves, still more unfit to help other people.

The economic problem of tuberculosis falls under three heads. I want to say a few words to you about the cost of the disease. *First*, as regards the loss of the working power in the nation; *secondly*, as regards the cost of its prevention; and *lastly*, as regards the cost of its treatment and cure. On many of these points complete and absolute data are not available, but enough is known, I think, to give us at least sound general ideas.

First of all, as regards the cost of the disease in general—that is, the cost of the disease as a factor in national efficiency—Professor Cornet, of Berlin, one of our greatest living authorities, reckons the cost of tuberculosis to the Kingdom of Prussia at £4,300,000 annually. Dr Charles Reinhardt reckons the cost of tuberculosis in the City of London at £4,000,000 per annum. Let us see if we can make any calculation—even a rather rough calculation—as regards the probable cost of the disease to Ireland. Some of the facts are well known. We have about 12,000—a little under 12,000—deaths in the year, and I think if you reckon that we have at least 120,000 cases—some would put the figures at 150,000, but I want to keep within the mark—if we say that there are 100,000 people in Ireland who are the subjects of tuberculosis, I do not think we shall be exceeding the truth. Many of these are earning their living; many of them are women; many, of course, are children. Suppose we reckon that one-fifth of that total are wage-earners, and are more or less incapacitated by the disease from carrying on their ordinary avocation; of course, the figure is only a guess. Suppose we reckon that 20,000 people in Ireland lose more or less their ordinary wage because they are victims of tuberculosis, and suppose at a very low estimate we take the wage-earning capacity of the individual at £25 per annum—that, I think, is a very modest estimate—we have at once half a million of money. And if you reckon the cost of the treatment of those cases at ten shillings a week, which I am quite sure is very much under the mark, you will find, if you work out a little sum, that you have another half a million.

So that, taking a very rough calculation, which I feel quite sure is very much under the mark, we arrive at the conclusion that Ireland loses annually not less than a million from tuberculosis, and the figure may possibly be very much nearer two millions. These figures do not pretend to mathematical accuracy, they only pretend to substantial truth; but I think they bring home to us in a very effective way how much we are losing by this disease, and how great need—from the point of view of national efficiency and of economics, from the point of view not merely of sanitation, but from the point of view of hard cash—how much need there is for the movement in which we are engaged.

My second head relates to the cost of prevention. That would include such factors as the following:—The means taken to segregate the infected, the money spent upon improved housing, the control of our milk and meat supply, including the inspection of dairies and the destruction of infected animals, the control of unhealthy trades, and lastly—a point not of least importance—the provision of proper schools for our children. The cost of segregation, of providing institutions, will perhaps come in best under my third head.

As regards the cost of improved housing, there is ample proof that this is a point of first importance. In Paris it has been found that in the quarters near the Champs Elysees, where the housing, of course, is excellent, the tubercular rate is only a little over one—it is 1.08 per thousand; while in the poor parts of Paris, where there is much overcrowding—Grenelle and Plaisance and other parts of the lower portion of the city—the tubercular rate is very nearly ten times that—it is 10.4 per thousand. We find, then, according to the social position and according to the housing and general comfort of the people, such a variation as that—in the best parts of Paris it is 1.08 per thousand and in the worst it is 10.4. Professor Henschen, of Stockholm, has worked out some interesting problems in that city. He finds that where there are one hundred bedrooms for one hundred persons the tubercular rate is 1.4 per thousand;

where there are one hundred bedrooms for three hundred and forty people on the average the tubercular rate is 3.8. This question is so well known, it is such a commonplace subject, that I do not think I need spend much time in further demonstration. I suppose you are aware that bad housing is one of the greatest factors in the large amount of tuberculosis that unfortunately prevails in this country. Insanitary houses tend to promote the disease chiefly in two ways—first, by increasing the opportunities for infection, and secondly, by lowering the resisting power of the individual. In Ireland, then, the most urgent of our wants in this matter is, perhaps, the provision of proper houses for the poor people. I am very glad to believe that in most parts of the country a movement in that direction is in active progress. Within the last year or two I had an opportunity in Donegal and Down of seeing what is being done in both those counties under the direction of the District Councils. And only the other day I had an opportunity of seeing what is being done in Dublin, where you owe a great debt of gratitude to Lord Iveagh for his efforts in this direction. I saw a letter in this morning's *Irish Times* which contains a hint that is, I think, worthy of our attention. Good houses will not in themselves check the plague of tuberculosis. Complaint is made, I believe, in some parts of the country that people, when they have secured a good house, think that they may neglect ventilation—they forget minor precautions. So it will be necessary for us to remind the people that a good house is only a means to an end; it is only a means to the end of good air and good sanitation, and that even a good house can be very much misused. I have made some inquiries recently as regards the cost of housing in this country, and I find that in the North of Ireland the cost of these houses for peasants and artisans is about £220 or £230 each. I must say that price seems to me rather excessive. One would hope that a rather smaller sum would suffice for the erection of a cottage. That, however, is about the

present figure. Good housing ought to include the following factors:—The exclusion of noxious ground air, the prevention of the harbourage of dust, copious ventilation, the free access of sunlight, the abolition of back-to-back houses, the opening of closed alleys to the light, and the provision of air-spaces.

Another great factor in prevention is the control of the milk and meat supply. I think there is no longer any doubt that milk is one of the important vehicles of infection. We have the great authority, Robert Koch, taking the opposite view; but he stands almost alone in his opinion. And probably our meat supply in a minor degree is also one of the sources of danger. So amongst the elements of cost in the battle against tuberculosis we shall have to reckon the inspection of dairies and the destruction of infected cattle. The society will be advised, I am sure, as regards these points by our veterinary experts. I only make one remark on the meat question in passing. A good many foreign nations are acting on the principle that meat should be entirely rejected if the flesh or the bones are the seats of disease and if there is a general dissemination of the tubercle in the animal; but if the tuberculosis is confined to a single organ that the meat may be sold when cooked. My own feeling would be one of great repugnance to the idea of using for human food the flesh of an animal which is in any degree infected with tuberculosis. The control of unhealthy trades is also one of the elements of cost. That, however, need not be a very large element. Let me say a word or two on the provision of proper school buildings. I want to impress especially upon those engaged in this movement in this country the necessity of providing proper buildings for the school children. I wish some of the ladies would spend some of their leisure in visiting the National Schools of Dublin or other places. I am not speaking from personal experience here, but I know the condition of things in Belfast, and I am not sure that you are much better off here. I assure you that in various parts of this

country children are being educated in simple dens—over-crowded, ill-ventilated, improperly supplied with most of the necessities of wholesome living. I think it is very much to our discredit in Ireland that we have allowed this to continue so long, and I hope that amongst the collateral results of this great movement will be one to ensure that the Irish children shall have healthy schools, and shall not be infected during their school period. I wish to mention one fact without going into detail. We have a little over two hundred schools in Belfast—*i.e.*, National Schools. It has been found that about one-third of those have no play-grounds whatever. The consequence is that at play-time the children either go upon the streets or they are kept in the school, and have to take their lunch in the rooms where they are taught. That is very discreditable and highly disgraceful to Belfast—a rich city which has spent money freely on many things, but spent it very niggardly indeed as regards this question of proper school buildings. Some of the new schools in Belfast are, however, in all respects excellent. Now, for healthy schools we require the following conditions:—The school should have a proper site; it should not be too near dense populations; it should not be too near unhealthy trades; it should not be near sources of air pollution; it should have a sufficient air-space; it should have suitable play-grounds; it should have about ten square feet of floor-space per scholar; it should have a window-space about one-fifth of the floor-space; it should be properly heated and properly ventilated, and it should be provided with cloak-rooms and other necessary accommodations. As we are dealing this evening with finance let me say that a proper school, fulfilling these conditions, for about two hundred scholars would cost about £2,000—not, I think, a very excessive sum. For about £2,000 we can have a school to accommodate two hundred scholars and fulfilling all the conditions of medical science and hygiene.

Among the agencies that will help us in the battle are

what are known as Tubercular Dispensaries, according to the method of Calmette, of Lille, and Philip, of Edinburgh. You probably know what is intended by these dispensaries—places where advice is given, where patients can come for examination, where, perhaps, a certain amount of food may be distributed, and where sick nursing can be supervised. All this is included in what are known as Tubercular Dispensaries. They have been adopted with great success in Belgium, in France, and in Germany, and they are just beginning to come into operation in the British Islands. Now, a figure or two about these dispensaries. It is calculated that one of these dispensaries would be required for each 50,000 people—would, at all events, do fairly well—and the cost of working a dispensary amounts to from £300 to £2,000 a year, according to the equipment and scale of operations.

Finally, and rather briefly, I come to the question of the cost of treatment. And here we are on comparatively secure ground. The facts are pretty well known. The cost of sanatoria can be ascertained, the cost of erection, and the cost of administration. I should like very heartily to re-echo the words of Professor Osler the other night when he said—"When you build sanatoria, build them cheap." And that for two very good reasons—first, that if we erect very expensive structures we very much limit the possibilities of the movement; and secondly, the cheaper structures are probably on the whole better for the purpose. I would altogether deprecate erecting large, expensive, elaborate buildings. At a cost of £100 per bed or less you can erect structures in all respects suitable, and such as will be capable of expansion. I should like to give you a few figures here as regards the new Abbey Sanatorium which has been recently erected a few miles from Belfast by the Poor Law Guardians of the district. They began by building four pavilions, and these pavilions had accommodation for one hundred and fifteen persons, and the cost of the erection of the four pavilions was £9,432.

They next proceeded to erect a large central building to accommodate one hundred and fifty persons. It has just been completed, and the cost has been £11,333. The entire cost of furnishing the pavilions and central block has been £1,850. If you work out these figures it will amount to this, that the cost of the building and furnishing that sanatorium amounted to £85 per bed—an exceedingly moderate cost. And I hope that all our friends here who happen to be in the vicinity and who are interested in this movement will pay a visit to this sanatorium. I think you will find that it fulfils all the necessary conditions. The pavilions are large and bright and airy, the grounds are suitable, and all this has been achieved at a very low figure indeed—at about £85 per bed. I also made inquiry from Dr. Hall, the head of that sanatorium, as regards the cost of maintenance per person. The sanatorium is only in operation a couple of years or so, and, therefore, he has not had time to form an exact estimate of the cost; but he finds that, as far as he has gone, the cost of maintenance is about £30 per head. That sanatorium there is a poor law sanatorium. It is largely for the pauper classes. There is a good deal of unpaid labour in connection with it, and all necessaries are got at a minimum cost. I do not put forward £30 per annum as a practicable figure for the entire country. No doubt the cost would somewhat exceed that figure. In talking the matter over with Dr. Hall, who has much experience in this matter, he came to the conclusion that somewhere between £30 and £40 per head per annum would satisfy all the necessary conditions. Sir Ralph Littler, in a recent letter to the *Times*, referred to the cost per head in our prisons. I do not put forward prisons as good models for sanatoria. But at all events prisoners are well housed, and, on the whole, they are pretty well fed, and they are certainly well looked after as regards sanitation, and their health is remarkably good. The cost of our prisoners per head is about £25 per year. That, I think, gives you the minimum at which the individual can be kept, housed,

fed, and attended to, under reasonably good conditions. However, in our sanatoria for tuberculosis we want to go beyond the prison level, I think, particularly as regards food. I understand prisoners get simply the minimum of food to keep them in good health. They certainly get that minimum. But the tuberculous patient requires more than the minimum. He requires the maximum of food, but not necessarily of costly food. Perhaps, then, if you take £40 a year you would have a sum at which you may fairly expect to keep tuberculous patients in good condition, and with fair prospects of benefit and, in some cases, of cure. The only drawback to the sanatorium movement is that if we are to adopt it in a proportion at all adequate it will be an enormous tax upon a community. A calculation has been made that a country may get on pretty well with about one sanatorium bed per thousand of the population. That is a very rough calculation—about one bed for a tubercular case per thousand of the population. That would require more than 4,000 beds for Ireland. At the present time I think we have somewhere about one-tenth of that figure—somewhere about 400 all told, and we should probably need 4,000. You will require about 4,000 beds to adequately grapple with the disease at a cost per head of £40 a year for maintenance, and there you have the problem. You have there a figure too heavy a tax for charity. I have no hope myself that charitable effort, that philanthropic effort, will ever overtake this gigantic task. We shall have to follow here, as elsewhere, in the wake of Germany. We shall have to appeal to the insurance companies, to our benefit societies, and perhaps to the State. This is the last point I wish to dwell upon. The question is—Is it worth while to put up large buildings; is the game worth the candle? I find there are a good many people who say "No." That sanatorium treatment is very costly; that the results are not very brilliant, and that the whole thing is hardly worth the expense. I want to combat that view in a sentence or two. In Germany it has been

found over a period of forty or fifty years that of the people who undergo sanatorium treatment about 66 or 67 per cent. recover sufficiently to go back to their trades. Of a hundred persons that you subject to sanatorium treatment from the artisan or labouring classes you may expect that about two-thirds will at all events regain a certain degree of health, and will be sufficiently well to return for a time to their occupations. The further question arises—"How long will they continue to work if they go back to their trades? Not very long in many cases; but the average is perhaps not less than three or four years, taking is as a minimum. And if you reckon the wage-earning power of the individual at, say, £25, £50, or £75 per annum, and if you calculate that by treatment for six or nine months in the sanatorium you can restore him to his working capacity for three or four years, and if you work out that sum, I think you will conclude, as regards the cost of sanatorium treatment, that on the whole the game is worth the candle.

Dr. Stafford, Medical Commissioner, Local Government Board, said: Lord Pirrie, ladies and gentlemen, I have very great pleasure in proposing a vote of thanks to Professor Lindsay for his most admirable lecture this evening. It is very fitting, I think, my lord, that this lecture upon the economics of this great question should be delivered by a Belfast man. It is the practical part of the question, it is the great money part of the question, and I think, Sir, it is very fitting, too, that you should be in the chair on this occasion. It is very fitting that two Belfast men should come here from that great centre in the North to tell us how we can tackle this great question from the economic point of view. Professor Osler, the other evening, pointed out that there were two main aspects of the subject—the question of the seed and the question of the soil. We have been up to this dealing very largely with the question of the destruction of the seed—that is, the question of destroying the germ of tuberculosis by taking away the patients from their homes and from their surroundings and dealing

with them. The question of the soil is very important from the economic point of view. It is the ideal of placing our people in such a condition of health that they will not be susceptible to the disease. Now, Sir, I should have been glad if Professor Lindsay had gone even further into this question in which we are all so deeply interested, and if he had told us how the man in the street—for this, after all, is largely an urban question, it is a town question to a great extent—I should have been glad if Professor Lindsay had told us how a man in a big town, with an income of, say, 15s. or 20s. a week, and with an average family of four or five people, is going to feed them and house them and to clothe them upon that money, and bring them up in such a condition that they shall be insusceptible to tuberculosis. That is the question which is really the bedrock of the whole subject—it is a question of wages. I have very great pleasure in proposing that the thanks of this meeting be given to Professor Lindsay for his most eloquent and suggestive lecture this evening.

Professor Carroll said: My lord, ladies and gentlemen, I do not think that a single person will leave this hall without much information from the clear and, I will put it, the simple words of the lecturer this evening. I understand that this is entirely a meeting to consider the economic side of the problem of tuberculosis. There is no doubt whatever that the undertaking of dealing with the problem will be an expensive one, but there is no doubt also that the expenditure will be well repaid. In countries where they have tackled this question with some vigour the results have shown that the expense is not at all greater than what would be expected. I know a little of some of the countries in Europe where the matter has been dealt with from a veterinary point of view. In Denmark, for a number of years, war has been waged against tuberculosis in cattle with singularly successful results. There are districts in Denmark where tuberculosis in cattle has been completely extinguished. In the island of Guernsey, where they are

very particular indeed about the introduction of diseases of cattle, they have practically removed tuberculosis and other infectious diseases, and now they have a clean bill of health. As regards the housing of the people, there is no need to impress its importance upon you, because that question has been already dealt with. There is no doubt whatever that the question of housing our poor people—our artisans and those in an inferior position—is a very serious one. Anyone who is aware of the conditions of life in the wretched cabins throughout the country must see that they are hot-beds of disease. The improvement wrought by the erection of the new labourers' cottages has been very great, and our Registrar-General may some day be called upon to make a comparison between the health of those in the new cottages and those in the old ones; and I think he will be able to show without much trouble that the improvement has been very considerable. As regards milk, there can be very little doubt that milk, as it is at present disposed of generally, is a great source of this disease. Anyone who has seen the results of dealing with Pasteurised milk will see at once the great benefit that may be derived from that system. I may say that I have personal experience of it. Two children that I know were extremely delicate when they were reared on the ordinary milk, but directly they got Pasteurised milk they improved. I think the offer that has been made of a Pasteurising plant to Dublin is a very generous one, and I hope it will be availed of. As regards the spreading of information in this matter I think that those who are responsible for the training of our teachers may be very properly asked to give opportunities to the teachers of acquiring information on this subject. The question of sanitation is one that up to the present has not taken that place in the educational system of our country that it deserves. I can tell you a notable case of a teacher who ought to have known better. He was himself laid up with fever. I called upon him, and I found that I could not get in by the front door. Going in by the back I

found that the entrance hall was fitted up for the comfort of a calf, and that his bedroom was leading off from this hall. Now, if that man knew anything whatever about sanitation I think that would not have occurred there. I will not take up your time any longer. I have great pleasure in seconding this vote of thanks, and I may say that from no little experience I have never heard a more practical or a more understandable lecture than that which has just been given by Professor Lindsay this evening.

Lord Pirrie said: Before I put this resolution I am sure you will allow me to say how glad I am to support it, and with all my heart. It is very gratifying to Professor Lindsay, as it is to me, to find that we can come to Dublin and see people of all denominations, of all politics, coming together on a common platform and trying to kill this terrible disease. I do not think I ever heard so striking an argument as that put forward by Professor Lindsay. He has shown that the movement to deal with tuberculosis would be not only self-supporting, but that in time it would pay enormous dividends. In London it would save four millions a year; in Ireland it would save one million. That is five millions alone, without taking into account any other places. Professor Lindsay said that we might double his figure without making any mistake. If we did so, that would give us ten millions. Now, the cost of these four thousand beds that he spoke of at £40 a year would be only £160,000 a year. Out of that there is an enormous profit to be divided amongst somebody—divided amongst the employers of labour and the people of the country at large. You can make your own calculations. I only want to add my word of support to the resolution that has been so ably proposed by Dr. Stafford and so ably seconded by Professor Carroll. I think the best plan to carry it would be by acclamation.

The vote of thanks was passed by acclamation.

Professor Lindsay, in reply, said: I am much obliged to you for your kind vote of thanks. I have

only one word to say in reply, and it is this—That this is a work in which all Irishmen and all Irishwomen can join. It is a work in which the North can join hands with the South. You cannot always say this in this country, but you can say it as regards this battle. I think I may say, as one who has given this subject much attention, that I do not know any cause more worthy of the practical sympathy and the practical help of every well-wisher of Ireland.

DEPUTATION

OF

MEDICAL CORPORATIONS AND SOCIETIES AND OTHER ASSOCIATIONS WORKING AGAINST TUBERCULOSIS

TO

HIS EXCELLENCY THE LORD LIEUTENANT, THE CHIEF SECRETARY,

AND THE VICE-PRESIDENT OF THE DEPARTMENT OF AGRICULTURE.

NOVEMBER 29TH, 1907.

The deputation consisted of the following, viz.:—

Dr. J. M. Redmond, President, Royal College of Physicians; Sir H. Swanzy, President, Royal College of Surgeons; Surgeons J. S. McArdle, President, Irish Medical Association; Mrs. Rushton, Hon. Organising Secretary, Women's National Health Association; Dr. M. F. Cox, Committee of the Tuberculosis Exhibition; Dr. A. E. Boyd, Hon. Sec., Tuberculosis Exhibition; E. P. Culverwell, Esq., F.T.C.D., National Association for Prevention of Tuberculosis in Dublin; Robert Brown, Esq., National Association for Prevention of Tuberculosis in Belfast; Sir Stanley Harrington, National Association for Prevention of Tuberculosis in Cork; Prof. Mettam, M.R.C.V.S., Veterinary Medical Association of Ireland; N. J. Synnott, J.P., Irish Workhouse Association; A. M. Fullerton, Esq., Philanthropic Reform Association; Dr. J. McCaw, President, Ulster Medical Association; Dr. P. J. Cremen, Cork

Medical Society; and Major Courtney, Dublin Sanitary Association.

The deputation was received in the Privy Council Chamber, Dublin Castle, by their Excellencies the Lord Lieutenant and Countess of Aberdeen, the Chief Secretary, the Vice-President of the Department of Agriculture and Technical Instruction, and the Vice-President of the Local Government Board for Ireland.

There were also present:—Dr. T. J. Stafford, Medical Commissioner, Local Government Board for Ireland; Mrs. Birrell, Mr. Max Green, Private Secretary to His Excellency; Viscount Anson, A.D.C.; Surgeon Tobin, and Sir William J. Thompson.

Her Excellency the Countess of Aberdeen said: Your Excellency, Mr. Birrell, and Mr. Russell, I have the honour, as the President of the Women's National Health Association of Ireland, to introduce to you a deputation which has been formed at our request.

This deputation represents the views of the chief medical organisations of Ireland, and also those of the leading societies concerned in the suppression of tuberculosis. The medical profession and the societies mentioned have been doing their utmost for years to awaken the people of Ireland to the peril in which they are placed by the ravages of this disease, as demonstrated by the Annual Reports of the Registrar-General. They prove to us with authority that it is a preventable disease, and that within a measurable number of years it can be stamped out if the Irish Government, the local sanitary authorities, the educational authorities, and the people themselves will combine for the purpose.

We are greatly encouraged by the public interest which is manifesting itself in all parts of the country on the subject in connection with the Tuberculosis Exhibition now on tour, and we deem the time is ripe for utilising this public interest in carrying out the schemes of prevention and suppression which have been found most effective in other countries. But in order to do

this there are certain impediments which must be removed by legislation, certain facilities given, and certain regulations enforced which will enable our campaign to be carried out thoroughly and with every confidence of success.

There are four points on which the societies here represented are united in considering essential, and these will now be placed before you by some of the gentlemen present. The four points are as follows:—

(1) That special legislation should be introduced without delay with the object of making it compulsory that all cases of pulmonary tuberculosis should be notified, taking care at the same time to protect consumptive patients from any undue interference with their liberty.

(2) That the adoption of more stringent and uniform measures for the regulation of milk and food supplies is urgently required.

(3) That County Councils in Ireland should be enabled to erect and maintain such hospitals, sanatoria, and dispensaries for the treatment of consumption as they think fit.

(4) That there is urgent necessity for a system of medical inspection of schools and school children.

If you will allow me I will, in the first instance, call upon Dr. Redmond, President of the Royal College of Physicians, to speak to the first of these points—namely, as to *compulsory notification*, taken in conjunction with safeguards to protect the liberty of the people affected.

Dr. Joseph M. Redmond, President, Royal College of Physicians, said: I have to thank your Excellency, Mr. Birrell, and Mr. Russell, on the part of myself and those present, for your kindness in receiving this deputation, which has assembled here to-day in response to an invitation received from the President of the Women's National Health Association, Her Excellency Lady Aberdeen, to whose noble exertions and self-sacrificing devotion in the cause of humanity the prominent posi-

tion tuberculosis occupies in the public mind is mainly due. This question of tuberculosis is of vital importance to everyone, but most particularly to the people of Ireland, as tuberculosis accounts for more than 12,500 deaths annually in this country, and for each death we may calculate that at least twenty patients are suffering from the disease. In the Dublin Registration Area tuberculosis is just as fatal, if not more fatal, than all the principal epidemic and general diseases combined. When we note that one-fourth of the total mortality of the whole world is due to the same disease, we at once come to realise the gravity of the situation. In France it has been ascertained that about 50 per cent. of all those who die of old age, accident, or other disease, on whom autopsies have been held, have suffered at one time or other from tubercular disease, as traces of old-standing cured tubercular lesions have been found. In this gloomy picture which I have drawn the one bright spot is the knowledge that consumption is curable. This fact ought to act as a powerful stimulus to us in the warfare against this terrible scourge—the white plague. The prevalence of the disease, and the great importance of the subject, need no further comment. As to the desirability of tuberculosis being made a notifiable disease there can be no question. From the experiments of Flugge and others we learn that the fluid droplets expelled in the act of coughing, sneezing, &c., from the mouths of patients suffering from tuberculosis, contain virulent tubercle bacilli, and that fine spray charged with these germs may float to long distances in the air. Fresh legislation will be required to attain the desired object. For many reasons it would be most cruel, impolitic, and unwise that the penal clauses of the existing Acts (the Notification of Diseases Act and the Public Health Act) should be put in force against the poor sufferers from tuberculosis, as many of those affected with the disease can, with perfect safety to others, reside with their families while the cure is going on. As an argument in support of this contention I may cite the

following interesting experiments which have been carried out in France :—

"At the recent French Medical Congress M. le Noir and M. J. Camus made public their results on this subject. They took samples of air in hospital wards occupied by tuberculous patients, in many cases at 50 centimetres distance from the mouths of patients who coughed, and whose sputa contained bacilli. The air was filtered in several ways, through cotton and through powdered sugar, which was subsequently dissolved and injected into guinea-pigs. The dust from 53,000 litres of air was collected and centrifugalised, the deposit being used for inoculations. The samples were taken both from sunny and confined places. In no case did any inoculated guinea-pig develop tuberculosis, and these experiments show the difficulty of tuberculous infection by inhalation—at least in a hospital environment where the elementary conditions of hygiene are observed."

In reference to the question of compulsory notification of tuberculosis the Royal College of Physicians, which I have the great honour to represent, is strongly of opinion that it should be made a notifiable disease, and that all varieties of tuberculosis which exist in a communicable form should be included—such as pulmonary, renal, urinary, discharging glands, abscesses, &c. Though the College which I represent would very much wish to see tuberculosis made a notifiable disease, yet no physician would for a moment desire that the poor victim of this dreadful scourge should be dealt with in the same manner as a patient suffering from small-pox or the plague. Consumption differs essentially from other infectious diseases, as it may kill its victim in a very short time, but, on the other hand, most of the cases are chronic, and to my knowledge some may last for over twenty-five years.

In some English cities—for instance, Liverpool—there has been a system of voluntary notification in existence for some years, with, I understand, most gratifying results, as the mortality from tuberculosis shows a

marked decline; but the health authorities do not claim that this result is solely due to notification, as, at the same time, a large number of general sanitary measures have helped to contribute to this reduction in the death-rate.

Reports from America in favour of compulsory notification are encouraging, as a great many of the cities in the United States of America have established compulsory notification with most favourable results. In Sydney, Australia, compulsory notification of tuberculosis has proved in every way satisfactory. There are no complaints, as far as I can learn, of any hardship having been inflicted on any patient suffering from tuberculosis in consequence of the disease having been made compulsorily notifiable.

The Local Government Board of Scotland issued a circular early this year, classifying tuberculosis as an infectious disease within the meaning of the Public Health Act, 1897. If legislation be introduced in the direction of compulsory notification every precaution should be taken so that the liberty of the poor patient suffering from tuberculosis should not in any way be interfered with, and also that every safeguard should be used in order to prevent the confidential relations which exist between the medical attendant and his patient from being in any way strained.

In conclusion, I may state that the Royal College of Physicians, at a meeting held on Wednesday evening last, the 27th inst., unanimously passed a resolution approving of all the recommendations made in the circular convening this deputation issued by Her Excellency the President of the Women's National Health Association of Ireland.

Sir Henry Swanzy, President, Royal College of Surgeons, said: Your Excellency, Mr. Birrell, and Mr. Russell, I am here to-day representing the Council of the Royal College of Surgeons to express on their part

and for myself our entire, warm, and unanimous approval of the suggestions which are being made to you in the hope that legislation will be introduced on the lines indicated with the view of mitigating or entirely eliminating this plague. My desire and my duty are to advocate the adoption of the first item on the programme before us—the necessity for compulsory notification of all cases of pulmonary tuberculosis, which is the most infectious form of the disease. Compulsion is an unpleasant word, and compulsion by Act of Parliament should not be sought for unless grave public interests are involved, and that that is so in this case there can be no manner of doubt, for the main object of this movement, and the object with which compulsory notification is asked, is that while curative measures are not left out of sight, the main object, I take it, of this movement is the protection of the healthy members of the community from the infection of this terrible disease. It is plain that no check can be put on its devastations so long as fresh cases are allowed to come into being. Indeed, one may say that compulsory notification is the keystone of the arch without which any other measures to eliminate the disease must fall to the ground. It will be asked naturally, What is to happen when a case of pulmonary tuberculosis is notified? Will the sufferer be torn from his home and forced into some consumption hospital or sanatorium? Nothing of the kind. Each case must be dealt with according to the stage in which the disease is found, according to its surroundings and general conditions, and in many instances it will be quite sufficient to teach the patient how to treat himself and in what way to avoid infecting those with whom he lives and comes into daily contact, and at the same time also to teach those who are associated with him how to protect themselves. These measures and others which I need not enumerate will be rendered possible through compulsory notification, which will enable us to discover all the cases of pulmonary tuberculosis if it is properly applied. My Council and I are particularly desirous that these

suggestions, if they become law, and when they become law, should work smoothly, satisfactorily, and efficaciously, but in order that that may be so it is necessary to remember that you must secure the immediate goodwill of the public and of the medical profession. For example, with regard to the public, no very harsh measures must be attempted. Anything, for example, that would savour of harshness to the bread-winner of the family would be likely to be resented and likely to create a tendency to concealment, which would rapidly undermine the influence of the Act and frustrate its operations. As regards the medical profession, the point which has been touched upon by the President of the College of Physicians is one which I would like to also emphasise. It must be within the knowledge of everyone how delicate and how important are the relations which subsist between the medical man and his patient, and it would be a very unfortunate thing if anything was done which would unnecessarily strain these relations. The working of this particular recommendation for compulsory notification of pulmonary consumption will be very much in the hands of the medical profession throughout the country, and it is of the utmost importance that their goodwill should be secured in order that this recommendation may be worked with success. The proposal, no doubt, has its difficulties, but I feel sure that in the able hands to which we are confiding the affair that this difficulty will be overcome, and if we are providing for the Chief Secretary one problem more I feel sure that his qualities of heart will enable him to solve these difficulties, for surely nothing can touch a man's humanity more than this great effort to wrestle with this plague of tuberculosis in our land.

The Countess of Aberdeen : The second point—that the *adoption of more stringent and uniform measures for the regulation of milk and food supplies is urgently required*—will be spoken to by Professor Mettam, President of the Veterinary Medical Association of Ireland.

Professor Mettam, M.R.C.V.S., said: Your Excellency, it is now universally admitted by those who are in a position to judge that tuberculosis of the lower animals and of man is to all intents and purposes one and the same disease, and any crusade against tuberculosis in man cannot be successful unless measures are adopted to combat the disease amongst the lower animals, and especially those producing flesh and milk for human consumption. It is not the time or the place to consider how it can be prevented in the lower animals, but I may in passing say that at present there is no general adequate provision for the inspection of milk intended for human consumption, and by far the greatest mass of flesh consumed has never been inspected, and the consumer has no guarantee that the animal was in good health and condition when slaughtered and that the flesh is wholesome. Animals intended for the food of man should be inspected prior to slaughter, and the carcase and viscera should be examined after death by an inspector who has had a training in the morbid anatomy, pathology, and bacteriology of the lower animals. Further, the slaughter of animals should alone be allowed in a public abattoir, administered by the local authorities. Here inspection can easily be carried out and at a moderate cost. As inspection is solely for the public good and for prevention of disease fair compensation should be allowed for the carcase of animals seized and destroyed. It is manifestly unfair that where an animal is found to be diseased and is seized that the whole loss should fall on the unfortunate owner. A scale of compensation should be drawn up which would not press heavily on the owner or on the community. As to milk intended for human consumption, there is no control over the supply which comes into an administrative area from without. There may be no inspection at all, and it may not be practicable for a local authority to inspect the conditions under which the cattle are kept and the milking done because of the distance of the dairy from the administrative area. More-

over, if inspection was possible, and if the care and surroundings of the cattle are as good as need be, the inspector has no power to order out of the byre nor to seize a cow that is diseased. While it is forbidden to use the milk of animals suffering from diseases of the udder, it appears that power is only given as to cleanliness and suitability of the byre, but nothing is done as to the suitability of the cows for the production of wholesome milk. In the Order it is expressly forbidden that the milk of animals with diseased udders should be used, but one is not able to say whether or not that milk is used in the absence of the inspector. Of course some authorities have special powers, but I am speaking in general terms applicable to the whole country. It has been shown beyond doubt that milk drawn from a tuberculous udder is dangerous milk for man, and that it is capable of producing the disease among human beings. Any effort to eradicate tuberculosis from the human family will be rendered nugatory if the milk supply is not controlled. I would suggest that every place where cows are kept for the production of milk should be registered and licensed, no matter where the farm or byre is situated, that the individual cows be registered, and that the owner be required to keep a record of how and why he disposed of his cows, and to notify any illness amongst the cows and those attending upon them. Periodically and at irregular intervals the animals should be examined by veterinary surgeons belonging to a public veterinary sanitary service, such as that connected with the Department, and the inspector should have power to quarantine a suspected animal until it can be shown that the animal is not affected clinically with tuberculosis. If the animal is affected clinically with tuberculosis, then it should be seized, and compensation, which might be arranged on a sliding scale, paid. As milk is so easily contaminated, and is a suitable medium for the growth of bacteria, special arrangements should be made for its carriage and storage while *en route* from the cow to the consumer. To summarise

the points I have referred to I think it is essential there should be inspection of all animals intended to be used as human food; public abattoirs alone should be used as slaughter-houses; inspection of the carcase and viscera, marking the flesh that has been examined, the inspection to be in the hands of an official who has had a training in the morbid anatomy, pathology, and bacteriology of the lower animals, especially a veterinary surgeon; periodical inspection of animals producing milk; power to seize animals giving tuberculous milk; power to go outside the administrative area to examine cows that produce milk brought into the area, and to inspect the places where they are kept.

The Countess of Aberdeen: The third point is that *County Councils should have power to erect and maintain hospitals, sanatoria, and dispensaries for the treatment of consumption*, and I will ask Dr. Cremen, of Cork, to speak to it first.

Dr. P. J. Cremen, Cork Medical Society, said: Your Excellency, Mr. Birrell, and Mr. Russell, I feel I have been deeply honoured in being asked to speak to this resolution. The question of the utility of sanatoria, hospitals, and dispensaries for the treatment of tuberculosis has been so fully discussed at the recent meetings of the Women's National Health Association in connection with the late Exhibition that I feel it unnecessary to go into further details as to what has been done in other countries. Suffice it to say that those who have paid any attention or have studied the subject are firmly convinced that they are the most important links in the chain of remedial measures for the prevention and cure of consumption. As to the desirability of having these institutions administered by the County Councils, I hope to convince you in as brief a space as the importance of the subject will permit that if the sanatoria movement is ever to be extended in Ireland—as I presume we all hope it will—it will take years to accomplish as the

law stands at present. To give you an idea of this—In the year 1903 we established a branch of the National Association for the Prevention of Consumption in Cork, and amongst other matters we conceived the ambitious idea of providing a sanatorium for the County and City of Cork—entrance free. When we looked into matters we found we should first get the consent of twenty-eight Urban and Rural District Councils. That rather staggered us for a while, but when we knew that our county was the plague-spot of Great Britain as far as tuberculosis was concerned, and when we felt that its life-blood was ebbing away, and when we felt it was a stain on preventive medicine which we should wipe out if we could, and when we knew the life of our own kith and kin was at stake, we quickly made up our minds and resolved to do all that was in us. Our blood was boiling, and we determined and resolved to do or die. Deputations from our Association had to wait on these twenty-eight Councils in different parts of the County and City of Cork, and after some months we had the gratification of being able to report that they had all consented to form a joint district. This necessitated travelling back and forward over 1,000 miles, and in some instances we had to go on two or three occasions to different individual Councils, because after agreeing they changed their minds and gave notice to withdraw. That part over, we had to apply to Parliament for an Order, which was the shortest part of it. After that we felt quite elated, and we congratulated ourselves that the worst was over; but the worst—nay, far the worst—was yet to come, and that was the selection of a site. Site after site was suggested, inquiry after inquiry was held, specialists came from England and from other parts of Ireland to prove or disprove the suitability of the site according to their lights. The Joint Board, who were anxious to do their best, were puzzled; the Local Government Board were puzzled, and we felt disheartened, and only for the generosity of a member of our association and the tact of the

Local Government Board the whole project was on the verge of ruin. The first portion of our task took one year, and the second portion three years, so that it took four years in all to accomplish; but as all is well that ends well, the site is selected, the work is begun. As to the advantage of having the County Councils to administer the hospitals I think there can be no second question when you consider the great objection that exists at present to entering a workhouse hospital on the part of the people. This, of course, is purely sentimental, but at the same time we are bound to respect sentiment. The change would certainly popularise the hospitals if they were put in charge of the County Councils. Another and a more distinct advantage would be the substitution of indoor for outdoor relief. This is a most important point, and worthy of the best attention of both the Local Government Board and all connected with workhouses. Dr. Newsholme, the distinguished Medical Officer of Health of Brighton, drew attention at the Congress on Tuberculosis to the fact that in his opinion the cause of the great decrease in tuberculosis in England was the substitution of indoor for outdoor relief, and he has many followers. This is only natural when you consider the fact that most of the worst-housed consumptives spend the most infectious period of their illness in hospitals instead of in surroundings which are calculated to cause the spread of infection. I have omitted to mention one point which I was asked to refer to, and that is as to the appointment of a bacteriologist. The County Council should have power to appoint a bacteriologist. That is one of the most important things, and, in fact, it is a *sine qua non* if you are to have compulsory notification. It is agreed on all sides that if we are to have an examination of our food supply and an examination of the sputum in suspected cases it is absolutely necessary to have such an appointment made. I would further add that after hearing the length of time it took us to carry out this work in Cork, you will readily understand that if we only had one

central body to consult, such as the County Council, instead of twenty-eight scattered Councils, what an amount of time and money might have been saved.

Surgeon J. S. McArdle, President, Irish Medical Association, said: Your Excellency and gentlemen, one of the greatest pleasures I felt when I was notified about this matter was the intimation that speeches should not be of more than five minutes' duration. I hope I can compress into five minutes all that is necessary for me to say in regard to this matter. I cannot say I represent the Irish Medical Association in its entirety here, because I was not able to call a meeting of the Association to discuss these questions, but as far as the Council of the Association goes, and as far as an informal meeting of the Association will permit me to speak for the Association, they are entirely in accord with the sentiments of all these four propositions which have been placed before the deputation. With reference to the question with which my name is associated on the programme, I think, from my knowledge of Mr. Birrell, he has a great desire to come down to bed-rock in everything he takes in hand, and that he would like to see these things in going order in the shortest possible time. I think it is possible in a great many parts of Ireland to have these suggestions brought into working order without very great expense. In his admirable report on Irish Workhouses, Mr. Micks suggested that the existing workhouses could be transformed into sanatoria immediately, and I think the suggestion is a very good one, as the buildings are airy enough in all conscience, and secondly, they are better placed than almost any other houses in the country. If you remove from the workhouse hospitals the curable cases, the accident cases, and surgical cases, and put them, as Mr. Micks has suggested, into the hospitals where they could be rapidly and effectively dealt with, you will save the community a great deal and add a great deal to the working power of the locality by utilising these buildings for the treatment of tubercu-

losis. In this way a great deal of useful and honourable work might be done.

THE COUNTESS OF ABERDEEN: Dr. McCaw, President of the Ulster Medical Society, will speak on the fourth subject—*the necessity for a system of medical inspection of schools and school children.*

DR. JOHN MCCAW, President, Ulster Medical Society, said: May it please your Excellencies, Mr. Chief Secretary, and Mr. Vice-President of the Council of Agriculture, I am afraid I cannot say I am as fully prepared to speak on this subject to-day as I would like, but I must plead as my excuse that we medical men in Belfast find our time very fully taken up at present in doing our best to further the very important Tuberculosis Exhibition in that city in which her Excellency has taken so deep an interest. I appear here to-day as President of the Ulster Medical Association, and in that capacity I speak for a large number of my professional brethren in Belfast and the North of Ireland. I think there can be no doubt, your Excellency, that the question of the medical inspection of schools is one of the very highest importance, and I think the fact will be admitted on all hands that for the lack of inspection much disease is not only contracted in schools, but that disease is spread amongst children. In regard to the schools themselves I think there is also need, and an urgent need, for a better class of schools than we have at present. The majority of the schools which have been recently erected in my district are admirable. We have had some schools built recently in Belfast which I venture to think would meet with the approval of the most fastidious; but against that we have a large number of schools going down the scale from moderate to positively bad, and those that fall under the latter head should be either removed altogether or such measures taken in regard to them as will put them in a condition

suitable for school children. Now, one other point in regard to schools. Have these schools proper play-grounds? It is one of the characteristics of the child that it loves play, and if we are to get the best out of our children in the way of education I hold strongly that that education must be alternated with periods of good recreation. With regard to where this recreation should take place, there is no place at all comparable to the open air. Now in Belfast we have some three hundred schools, and I understand that the large number of seventy of them have no play-grounds at all. With a considerable number of schools the play-ground consists of what is very little better than a back yard. I wish to urge as strongly as I can, your Excellency, the importance of having play-grounds in connection with schools. I fear also that there is something, if not a great deal, to be said about the deficiency of proper ventilation in the schools that do exist. Proper ventilation is a most important and vital point where a large number of children are gathered together. If a child is compelled to breathe a vitiated atmosphere it reflects on its mental powers and it brings about in time, under certain circumstances, a stunted growth, and it certainly has a lowering effect on the general condition. Then in regard to cleanliness, the schools we are told should be dusted every day, but I fear that that process, and necessary process, is allocated to the schoolmistress or schoolmaster—a functionary whose hands are already full. Then again, how many schools have we that are provided with cloak-rooms in which the children coming to school may hang up a wet coat, and I was going to say where the children might change their wet boots and put on a pair of dry slippers? but while this may be perhaps a doctrine of perfection unattainable in Ireland, still we must admit that if the child had an opportunity of changing its wet boots for a pair of dry, comfortable slippers it would certainly tend to a better condition of body, and I venture to think also to a more receptive state of mind. I think I have said enough with regard

to the surroundings of the schools as well as to the schools themselves to indicate that much remains yet to be done to bring our schools up to what one would say would be a moderate state of efficiency. Another point I would dwell upon is the very important one of inspection of school children. I find that very numerous diseases may exist in school children about which really we have been up to the present greatly in the dark. Take, for instance, the question of vision; the eyesight of children may be defective, and, as a matter of fact, has been found to be defective in a certain number of cases—in the case of some schools the percentage was as high as 1 in 10, in some cases even higher than that; and another point worth noting is that we find the percentage of visual defects rises in children rather remarkably from the age of six and a half to the age of eight years. This visual defect, as has been stated, is found in 3.5 per cent. in children attending schools under six and a half years, while that percentage has risen to 7 or 8 per cent. at the age of eight years. I venture to think you will agree with me that this is a very important point, yet it is a point that perhaps is entirely outside the knowledge of the teachers. You cannot expect teachers to be acquainted with visual defects, and unfortunately I think that what is rather common is that children are blamed for carelessness and other things, and are subjected to punishment in consequence, while in fact these things are due to visual defects of which the poor little ones themselves are not aware. Then another matter is the fact that a considerable amount of ear disease, or shall I say discharge from the ears, exists amongst children, and the hearing becomes affected in one or two per cent. of the children. Now, what I wish to say more particularly in regard to this is that a child may be discharging from the ear without having or without showing any defect as regards the organ of hearing itself. Now that is a condition of things which (Sir Henry Swanzy will bear me out in this) will lead not only to the infection of other children,

but may be the cause of very serious, and even fatal, disease in the child itself, and yet this condition is allowed to go on without any expert advice. Therefore, I suggest that it is a most important measure for the health of the children attending schools that these defects should be submitted to medical inspection, and that the whole school should be subject to such inspection. I shall close my remarks by urging as strongly as I can, first, the necessity for inspection of the school premises so as to have the existing premises improved; and, secondly, but not less strongly, the necessity and desirability of medical expert inspection of the children themselves at the school.

Dr. Michael F. Cox said: I think we may congratulate ourselves that we have met here upon a subject about which none is for a party and all are for the State—all for the highest purpose of the State—the welfare of the people. I am particularly pleased to think that I speak on behalf of those who will be the men and women of Ireland of the future, for as the children of to-day will be the fathers and mothers of the future it becomes us to take time by the forelock and to adopt measures by which the health of the children shall be ensured—such measures as will not only protect the children themselves from disease, but be the means of enabling them to teach others how to preserve their health by-and-by when they have ceased to be children. I think this is a very important resolution for, as the previous speaker has said, the schools and their surroundings, the playgrounds, and the ventilation of the schools, all preeminently concern the welfare of the children themselves, and I agree with him in thinking it is of vital importance that the children shall be taught cleanliness of person and cleanliness of clothing, that they shall be properly shod, that when they have boots or shoes and these get wet in the winter that the children should have an opportunity of changing them in school instead of sitting all day in damp boots or shoes, and, furthermore,

that they should be fed in some cases by giving them a mid-day meal if they require it and are not too proud to take it. Perhaps in that connection it would be a very good thing to have a mid-day meal established both in town and country, not only for the middle and poorer class schools, but also for the better class schools, so that the energies of the children should not be exhausted during school hours by absence of food. Let them have an opportunity of getting a mid-day meal. I am sure the idea would commend itself to all, yet this is totally avoided in all schools, poor and better class alike. Let me figuratively say that we have the voice of the children crying to us to come and save them—to stand between them and this plague of tuberculosis which threatens them and all our people so much, and that we are determined, so far as in us lies, to come and stand between them and this dreadful plague—not only this plague but other plagues of vast importance to our people. It is important that what is a preventable disease on the whole should be prevented by every means within our command, and that infectious diseases should be stopped by a timely inspection of insidious cases. In the case of children the infection by tuberculosis borne through the air might clearly be prevented by the adoption of preventive measures in the schools, and therefore I say that this movement should be fraught with the greatest good to the greatest number. It is also very important that children should be taught something of rudimentary hygiene—not a very elaborate course, but they should be taught at school the importance of such simple means to health as open windows and sleeping with their windows partially open. In the same way, with regard to cleanliness in their own homes, the children should be taught at school so that they may be able to teach their parents—for children sometimes do teach their parents, and most children think generally that they could teach them a great deal—and often it would be possible to enable the children to teach the parents much which it would be good for them to learn. Therefore, I

support most cordially the proposition made that we should endeavour to have this inspection of schools on these very important points, and also that there should be instructions on health subjects for the children in schools. There is a point I might be forgiven for mentioning, as it has some bearing on this matter, and that is a project which has been inaugurated in Connemara by a medical man who has thrown himself into the work with great zeal and self-sacrifice—Dr. Seamus O'Beirne—who has himself proposed to go amongst the poor people of Ireland to teach them in the tongue which is so dear to them the means of preventing this insidious disease of tuberculosis. I think you will cordially approve of this idea, and that you will be of opinion that it deserves all the support and encouragement it can get. I may perhaps be permitted to add one further observation which has a very important bearing, although it is a matter not so well known—that in old times in Ireland medical learning stood at a very high pitch. It is notorious that in the early middle ages Ireland was foremost in medical matters, and especially in medicine. We have proof of this in many of the ancient manuscripts to be found in the libraries of our Trinity College, the King's College, the Advocates' Library in Edinburgh, Oxford University, and other places. In these manuscripts we have the wisdom of the ancients—Aristotle and others, whose names are linked with the art of medicine in remote ages. Ireland has furnished masters of surgery to many lands and seats of learning in early times. I look with hope to Dr. O'Beirne's mission, knowing that he will speak to the people in a language that is beloved and understanded by them. Irish proved the key to many of these valuable manuscripts that have lain dusty in our great libraries for ages, and, therefore, I think we can join education in a special sense with education in the widest sense, and for this reason I advocate inspection of schools by medical men; that a proper register be kept of all cases of this disease; that provision be made for teaching at school

the children of the poor in matters pertaining to health, so that they may bring that knowledge back to their homes, and thus help to stamp out this plague and many other plagues that afflict our land.

His Excellency the Lord Lieutenant said : I do not think that the various aspects of this exceedingly important subject could have been more effectively set forth than in the addresses we have listened to. These addresses, short as they have been, seem to me to furnish a kind of symposium, containing, in due order and sequence, the leading features of the subject and of the measures you wish to see adopted and dealt with. Moreover, they have incidentally, but none the less effectively, suggested various matters of administrative detail which should accompany any such measures as have been advocated. Such being the case, I am sure that the members of the deputation have reason to feel that the trouble which they have taken in coming here and in formulating these statements has been eminently well bestowed, and the more so because the presentation of the case by a deputation so conspicuously representative, speaking with a professional and scientific authority of the fullest and most comprehensive kind, must have peculiar significance. Indeed, when such bodies as the Royal College of Physicians and the Royal College of Surgeons, and other well-known associations, attend here, and through their able spokesmen make their views known, we must needs listen ; and apart from the advantage to the Government of having such material as has been placed before us, there is the immediate benefit in the publication by the Press, which I am glad to see so well represented here, of such highly instructive statements as have been made here to-day. Without going into particulars I will just say, by way of illustration, that among many other points I particularly observed how, when the question of notification was being dealt with, care was taken to disclaim any idea of procedure which would be inconsistent with freedom from

any arbitrary, inconsiderate, or imprudent methods. On the whole, I feel sure that this occasion is one which may be regarded as memorable. Apart from the features already alluded to, I must be allowed to refer to the notable example of combined action on the part of the gentlemen here present to-day. We do not need to be told that the medical and surgical profession in Ireland stands in a position unsurpassed by that occupied by their brethren in any country in the world. When my friend Dr. Cox was alluding to that matter in very much the reverse of a complacent or boastful tone I thought there was no need to speak as if the profession was not likely to maintain its pristine glory; indeed, I thought for a moment that Dr. Cox was going to claim Aristotle as an Irishman, and if so I was going (adapting an old phrase) to say that the ability of the man would justify the assumption. Your action here to-day is worthy of the highest traditions of the great calling, the great art, which you pursue. As to the action of the Government I can assure you, without going beyond due official reserve, that our attitude will be sympathetic. As it is to the Chief Secretary that the work of putting through any Parliamentary measure will be allotted—and I am sure he will be supported ably by our friend the Vice-President—I will make way for Mr. Birrell.

The Right Hon. the Chief Secretary said: On the four points to which our attention has been particularly called this morning I would like to say just one or two words. Of course, you naturally place the question of notification in the front rank, and all will agree that if there is one thing more than another that should be notified it is the presence of the tubercular bacillus, which is destroying something like one-seventh or one-eighth of the human family, and not only destroys them but destroys them in the most painful circumstances—sometimes in their very early life, and very often in the prime of their manhood and womanhood, and inflicts

suffering and loss on the world which it is almost impossible, and, in fact, absolutely impossible, to calculate. And therefore, now that we know what this bacillus is and how it is generated, and how it can best be destroyed, the time has surely come when mankind should make a united effort to deal with it; and we are encouraged to believe by scientific men that it can be so destroyed, as practically in years to come to stamp out this awful scourge. One can hardly believe such a thing possible, but such a thing has happened with other diseases, and, therefore, we must be alive to the fact that every step should be taken that can be taken to carry on this great crusade. Very well, on this point we are all agreed, and all scientific men have agreed on it also, and I see that the International Congress on Tuberculosis held in Paris in October, 1905—representative of all scientific countries—came unanimously to this conclusion:—"That it is desirable that it should be the general practice to notify all cases of advanced tuberculosis." We start with that desire, but we are brought up very speedily, as one of the speakers to-day has reminded us, by two things—human nature and medical etiquette—both very important things, and we are cautioned not to do anything which will set human nature against us, and also cautioned against doing anything that will set the doctors against us. Well, I have too many people against me to try to enlist on their side either human nature or the medical profession. I can, therefore, only say that I think we are all agreed that the presence of tuberculosis should at once be notified, not for the purpose necessarily of destroying the home or even of removing the patient to hospital, but for the purpose, first of all, of making it known that this terribly devastating disease is in a particular locality, and to inform the unfortunate persons within its immediate reach how best to evade its ravages and how best to restore to health those unfortunate members of their families who may be in an early stage of the disease. In the case of those who are in an advanced stage—they,

of course, cannot be removed to hospitals until such hospitals are in existence for them to be removed to. And I think, when they are in existence, and when the people become acquainted, as they are happily becoming acquainted every day, with the nature of the disease and its cure, any obstacle will gradually cease. I think, therefore, we must recognise the necessity for notification, but we will take into consideration the hints you have given us so as to avoid imposing penalties or creating a scare in the public mind, which would destroy the very object we have in view.

As to the second point about the regulation of milk and food supplies, I have the advantage of a Parliamentary assistant in that matter, and Mr. Russell will likely say something on that subject. The Local Government Board have already issued stern regulations with regard to the accommodation for cows in Ireland kept in byres and other places, and although I confess that when I saw them I thought their very stringent character would militate against their use, I have been glad to hear they are generally received with approval, and that there is every reason to believe that these conditions, severe as they are, will be very generally observed by the people of Ireland. Therefore, so far as that goes we have made a step forward in the right direction, and I listened with great interest to what Professor Mettam said about the registration of cows and the treatment of them generally, and he held out the prospect of a very numerous army of inspectors, with a great number of duties, which, however, will be very adequately discharged by Mr. Russell's department. With regard to the third resolution, which is to enable County Councils to erect sanatoria, hospitals, and dispensaries, Dr. Cremen gave us an account of the great difficulties they had to encounter in Cork because of the fact that they had to consult no less than twenty-eight Urban District Councils before they could get a combined district allotted for the purpose of maintaining a sanatorium. These delays are certainly very serious, making the difficulty in carrying

out the task almost insuperable. They were overcome, however, after a great deal of labour and expense and the consumption of a great deal of time, and I agree that there should be unification of authorities in this matter, and that the County Councils should be enabled to erect these necessary buildings. Of course, the question of cost will no doubt arise, and I do not know whether it is worth considering whether you can deal with this national calamity in the same way as you have dealt with the contagious diseases of animals—by a national rate. If that could be done you would get over certainly some of the difficulties which exist, having regard to the poverty of some of the counties where sanatoria would have to be established. I know that that is a controversial point, and it occurs to me that fighting this disease is a national enterprise, one in which every part of Ireland is equally interested, and it might possibly tend to some solution of the question if it was found possible to have, as in the case of the Contagious Diseases of Animals Act, a national rate rather than a purely county one. I have followed with great interest this discussion all over Ireland about consumption, the Exhibition here and the lectures which have been delivered, and which, I am sure, have done an enormous amount of good in removing this question from simply the scientific and doctors' department into the street, so that all can talk about what concerns them all. No doubt the dispensary can do an enormous amount of educational work in this way, and there is in Ireland a very good service of dispensary doctors. I think in that respect Ireland is ahead of the other portions of the kingdom, and I think a dispensary, if properly founded, properly established and properly fitted up to deal with this disease, would play a great part in the warfare against it. Of course, the doctors must not be disregarded in that matter. Dispensary doctors are not too well paid as it is, and if you impose new and severe duties on them it is only right they should receive additional remuneration. The fourth resolution is, I think, a little bit

irrelevant to our general purpose. I need scarcely say I am a strong advocate of medical inspection of schools and school children. It was introduced into a Bill with which, I am happy to say, my name is no longer associated, and I was amazed with the immediate reception it received from all parts of the House. I am only sorry it does not exist here in Ireland. Of course when you talk generally about the condition of your Irish schools everybody agrees that schools should be spacious and noble, the play-grounds large, and that there should be cloak-rooms and other conveniences for the children, but you must remember that these things have only been obtained quite recently in England, and that they have been obtained by the great work of the School Board, established under the Act of 1870. In England they have imposed a rate for educational purposes varying from 9d. to 2s., and sometimes 2s. 6d., in the £, and that represents a vast expenditure of ratepayers' money—the result of local control. Well, these things do not exist in Ireland, and although I quite agree that everything that can possibly be done must be done in order to make Irish schools sanitary and fit to be places of education, I see very great obstacles in the way of putting them in the position they certainly ought to be in, but so far as medical inspection of school children is concerned that is certainly a point that, having been carried in England, ought to be applied to Ireland also. Therefore, on the part of the Government, I can only say that unanimity is of the greatest importance in this matter, and I think it is evident that unanimity does exist when I see all you gentlemen round this table to-day, and I assure you the Government will do its very best to give effect to your recommendations at the earliest possible time it can.

Mr. T. W. Russell, M.P., said: I preface the few observations I purpose making by reminding you that the Department with which I am connected is not the public health authority—that pertains to the Local

Government Board—yet we are interested in the subject owing to the fact that milk and meat are prime factors in the spread of tuberculosis. Before I left the office this morning I discovered that the milk production of the country is something like 475,000,000 gallons annually, and that of that quantity 75,000,000 gallons are used by schools. Now, of the total quantity used by schools from 20,000,000 to 30,000,000 gallons are subjected to some sort of inspection, but the rest is consumed without any inspection whatever, and even the inspection that does take place is of a very perfunctory character. That is a serious matter, and one which the local authority in this country ought to be able to remedy. There are two methods proposed for dealing with this disease in cattle. The first is the heroic remedy proposed by Mr. Field—he would not support anything that was not heroic—he is nothing if he is not thorough. In the Bill which he introduced into Parliament he proposed to slaughter all animals affected by this disease, and to give compensation to the owner. He says that this policy was successful in stamping out all other diseases in cattle, but there is this difference—foot and mouth disease, for example, was recognisable at sight. This is not. There can be no question that compulsory slaughter of these animals would be met with the very greatest resistance by the agricultural interest in Ireland, even if the question of compensation was got over, and that is not easily done. There is a second way of dealing with the question, and it is a method which the Department consider free from the difficulties which at all events attend the first method—that is, by sending experts in these matters, and especially in milk, to instruct the farmers and advise them under the direction of the local authority, and it is in this direction that I think the Department can render good service. We already have an army of instructors advising the farmers in their business throughout the country. We have a little over three hundred men and women scattered over the country co-operating with the farmers in their work as agriculturists.

I do not see any objection—in fact, I know it is done at present—I do not see any objection to making it part of the duty of these persons to look into this question and to advise the farmers upon it. That I think the Department can do. There is one other point which has been touched upon by one of the speakers to-day—the instruction of the people in matters of hygiene. There are domestic economy classes carried on under the Department, and we have a great number of girls attending these classes—many thousands now I am glad to say—and if hygiene, as Dr. Cox recommended, were added to the course much good could be done. In this way also the Department can act. Of course, all these things will involve a good deal of outlay. In one direction it will involve a huge dispensary system. We have an admirable dispensary system at present which can be utilised for this purpose. In the County Wexford we are at the inception of a scheme, which is being carried out with the help of the Department, for veterinary inspection, and practically it is proposed to apply the principles of the Medical Charities Act to the diseases of animals. Other counties are sure to follow. In fact, they are clamouring for it, but we have resolved to try the experiment first in Wexford, believing it to be the best county for the trial, and if it succeeds I see no difficulty in devising a scheme for each county in Ireland, by which these veterinary inspectors can assist in dealing with this disease in animals. In conclusion, I need hardly say that I shall be glad to co-operate with the Chief Secretary in promoting any legislation he deems necessary for the purpose of carrying out the objects we all have in view, and, so far as the Department is concerned, I shall undertake that all the assistance we can give in this important matter shall be freely given.

The Countess of Aberdeen: I thank your Excellency, the Chief Secretary, and the Vice-President for the very kindly reception you have given the deputation, and for what you have said in reply.

The deputation then withdrew.

CATALOGUE OF THE TUBERCULOSIS EXHIBITION

HELD UNDER THE AUSPICES OF THE WOMEN'S NATIONAL HEALTH ASSOCIATION.

Home Industries Section, Irish International Exhibition, Dublin, Oct. 12th to Nov. 2nd, 1907.

EXHIBITION COMMITTEE:

President:

HER EXCELLENCY THE COUNTESS OF ABERDEEN.

LADY MATHESON.
MRS. NUGENT EVERARD.
DR. ELLA OVENDEN.
DR. LILY BAKER.
THE REGISTRAR-GENERAL.
THE MEDICAL COMMISSIONER, Local Government Board.
SIR WILLIAM J. THOMPSON, M.D.
PROF. E. J. McWEENEY, M.D.
PROF. METTAM, F.R.C.V.S.
SURG.-GEN. D. EDGAR FLINN.
P. DUNNE, M.D.
MICHAEL F. COX, M.D.

Hon. Secs..

MRS. RUSHTON.
ALFRED E. BOYD, M.B.

STATISTICAL SECTION.

EXHIBIT PREPARED BY THE REGISTRAR-GENERAL FOR IRELAND.

1. CHART—Showing the Death-Rate from All Forms of Tuberculosis in Ireland, as compared with England and Scotland, during each of the forty-three years, 1864-1906.

2. TABLE—Showing the Occupations or Social Position of the Persons whose deaths were registered from All Forms of Tuberculosis in the Dublin Registration Area in 1906, and the Annual Death Rate per 1,000 persons in each group living in 1901.

3. DIAGRAM—Showing the Mortality from Twenty-two of the Principal Causes of Death in Ireland in the year 1906.

4. DIAGRAM—Showing the Proportion of Deaths from Tuberculosis at each Age Period to the number per 1,000 living in Ireland, as compared with England and Wales and Scotland, in the year 1903.

5. TABLE—Showing the Death Rate from Pulmonary Tuberculosis per 1,000 living during the ten years 1895-1904, and the year 1905, in various parts of the British Empire and Foreign Countries.

(From the Annual Report of the Registrar-General for England.)

6. MAP—Showing the rate per 1,000 of the Population of Deaths from All Forms of Tuberculosis registered in each Poor Law Union in Ireland, in 1905; the Deaths in Lunatic Asylums and certain Institutions having been assigned to the Union to which the deceased belonged.

7. DIAGRAM—Showing by Sexes the relative percentage of Mortality from the Principal Forms of Tuberculosis in Ireland during the year 1906.

8. TABLE—Showing by Sexes and Age Periods the number of Deaths from Tuberculosis registered in Ireland in 1906, with the rates per 1,000 living at each Age period.

9. DIAGRAM—Showing the Principal Causes of Infant Mortality in Ireland in the year 1905.

THREE FRENCH MAPS, also TWO GERMAN DIAGRAMS and a MAP, dealing with the subject of Tuberculosis, which were exhibited at the International Congress on Tuberculosis in Paris in 1905.

FIVE PHOTOGRAPHS OF CELLS in Irish Prisons, presented by Mr. James S. Gibbons, C.B., Chairman of the General Prisons Board for Ireland.

LITERARY SECTION—MUNICIPAL AND POOR LAW EXHIBITS.

Collected by Dr. Alfred Boyd.

LONDON COUNTY COUNCIL.

Population of Area 4,700,000 (about).

Death Rate from Phthisis (corrected) 1.42 per 1,000. (1905.)

Tables giving crude and corrected Phthisis Death-rates per 1,000 persons living in the County of London and the several districts.

List of Districts in which a system of Voluntary Notification of Phthisis has been adopted and of those in which it has not been adopted.

Details regarding the conditions under which persons suffering from Phthisis were housed.

Phthisis Death-rates in relation to overcrowding.

Diagram showing Phthisis Mortality, 1851-1904 percentage above or below mean.

Diagram showing Seasonal Mortality from Phthisis, 1895-1904.

Phthisis and Overcrowding—London, 1898.

Diagram showing comparative death-rates from Phthisis at certain age periods in groups of London Sanitary Districts, arranged with respect to their condition as to overcrowding.

Mortality and Overcrowding—London, 1898.

Diagram showing comparative death-rates from "All Causes" and from "All causes excluding Phthisis," at certain age periods, in groups of London Sanitary Districts, arranged with respect to their condition as to overcrowding.

Diagram showing Mortality from certain diseases in relation to overcrowding. London, 1898.

Diagram showing that the decline in Phthisis in London is especially marked at the younger ages.

London, 1905—Report detailing action taken by various Councils of Counties and County Boroughs in England regarding the provisions of Sanatoriums for Consumptives.

(Shown by courtesy of Sir Shirley Murphy, Medical Officer of Health, London C.C.)

CITY OF BIRMINGHAM.

POPULATION, 548,022 (1906).

PHTHISIS DEATH-RATE, 1.23 PER 1,000.

Voluntary Notification Certificate.

Notice *re* Disinfection after death from Phthisis.

Notice as to filthy houses.

Form used by Inspector making inquiries into notified cases.

Leaflet—Advice on the Prevention of Consumption.

Post Card for advising Medical Officer of Health of change of address.

Chart showing the distribution of Phthisis Mortality in Birmingham and Sheffield—two industrial centres; also England and Wales and Ireland. This is instructive as indicating the large effect which industrial conditions have on Phthisis amongst men as compared with that occurring amongst women.

(Shown by courtesy of Dr. John Robertson, Medical Officer of Health, Birmingham.)

CITY OF SHEFFIELD.

POPULATION, 447,951.

PHTHISIS DEATH-RATE.

Compulsory Notification of Tuberculosis of the Lung.

Reprint of Sect. 45, Sheffield Corporation Act, 1903, by which the disease was made compulsorily notifiable.

Circular of Sept. 30th, 1903, to Medical Practitioners, detailing the provisions of the Act, and stating that arrangements have been made with University College

for the Bacteriological Examination of Sputum of Sheffield patients free of charge.

Typed statement regarding the administration of the Act.

Handbills—"Advice with regard to Consumption."

Inspectors' Form for investigation of cases.

Report Form used by Medical Attendant on case not visited by Staff of Health Department subsequent to notification.

Notification Form under the Act.

Order Form for Spittoon, and also for Disinfectants issued to patients or their relations by the Inspector in charge of the case.

Notice relative to change of address, sent to Medical Officer of Health by patient's relations.

(Shown by courtesy of Dr. Scurfield, Medical Officer of Health, Sheffield.)

Three Views from Dr. Noel Bardswell's Book, *The Consumptive Workingman*, of Sheffield Royal Infirmary, showing patients suffering from Consumption, under treatment.

See also Spitting Flask supplied to poor consumptives by Public Health Department in Appliances Section.

CITY OF DUBLIN.

POPULATION, 293,385 (1906).

Notices issued by the Department inviting notification.

Reports of Public Health Committee to the Borough Council *re* the establishment of a Sanatorium.

Handbills and Posters *re* Consumption and other Diseases.

Report *re* accommodation for Consumptive Patients in some of the City Hospitals.

Typed statements *re* methods of the Department.

(Shown by courtesy of Sir Charles A. Cameron, C.B., Medical Officer of Health, Dublin City.)

Group of Photographs of the Consumption Hospital, South Dublin Union.

(Kindly sent by Dr. Dunne, Medical Officer.)

Ordnance Survey Map of North City of Dublin, showing houses in which deaths from Tuberculosis have occurred in the four years 1893-1897. Prepared by Dr. J. Knox Denham, and shown at the Congress of the Royal Institute of Public Health, at Dublin.

(Shown by courtesy of Dr. Knox Denham.)

CITY OF BELFAST.

POPULATION, 366,220 (1906).

DEATH-RATE FROM PHTHISIS (1906), 2.7 PER 1,000.

Typed statement regarding the methods adopted for the Prevention of Tuberculosis in Belfast.

Card—"Information for Consumptive People."

Two Charts showing the decline in Phthisis Mortality in Belfast, from 1880 to 1906.

(Shown by courtesy of Dr. Baillie, Medical Officer of Health, Belfast.)

Set of Twelve Photographs of the Abbey Sanatorium for Consumptives, Belfast.

(Shown by courtesy of the Guardians and Clerk of Belfast Union.)

Two exhibits of Belvoir Dairy, Newtownbreda, Belfast, showing photographs of the Dairy and a Notice hung on premises.

(Sent by Mr. H. Wilson.)

CITY OF EDINBURGH.

POPULATION, 341,240.

PHTHISIS DEATH-RATE, 1.09.

Forms, Reports, Charts, Statistical Sheets.—See also the Edinburgh Reports on Consumption and the Diagrams therewith shown with the modern works on Tuberculosis.

(Shown by courtesy of Sir Henry Littlejohn, Medical Officer of Health.)

CITY OF BRISTOL..

POPULATION, 363,223.

PHTHISIS DEATH-RATE, 1.11 PER 1,000.

Forms *re* Notification.

Forms showing procedure of obtaining admission to Winsley Sanatorium; see also details of arrangements with the Winsley Sanatorium for reception of municipal cases in Report of the Sanatorium attached.

Inspection Forms.

See exhibits in Appliances Section.

(Shown by courtesy of Dr. Davies, Medical Officer of Health, City of Bristol.)

CITY OF GLASGOW.

POPULATION, 835,625 (1906).

PHTHISIS DEATH-RATE, 1.513 PER 1,000.

Typed outline of action taken regarding Consumption under the heads:—*Notification*—Voluntary and compulsory; *Disinfection, Sanatorium Accommodation, Provision for isolation of advanced or incurable cases, Spitting, Bacteriological Examination of Sputum, or Visitation by public or private individuals.*

Paper on *The Modern Doctrine of Tuberculosis* by Dr. J. B. Russell—1896.

Report on *The Prevention of Tuberculosis* to the Committee on Health by Dr. J. B. Russell—1896.

Handbill—"Hints about the Prevention of Tuberculosis."

Registration Card.

Diagram showing the decline in Phthisis mortality in Glasgow.

(Shown by courtesy of Dr. A. K. Chalmers, Medical Officer of Health, Glasgow.)

CITY OF GLASGOW PARISH COUNCIL.

Set of photographs of the Consumptive Wards in Stobhill Poor Law Hospital, and of the sleeping châlets,

used for open-air treatment, in the grounds of Stobhill Hospital. Each châlet has two beds and is lit by electric light. The cost, including lighting, works out at £11 4s. 3d. per bed. (See typed statement).

(Shown by courtesy of Dr. William Core, Medical Superintendent, Glasgow Parish Council Hospital, Stobhill.)

CITY OF MANCHESTER.

POPULATION, 637,126.

DEATH-RATE FROM PHTHISIS, 1.71 PER 1,000.

Street and House Index Card for cases notified.

Investigation Sheet.

Reply Postcard sent by M. O. H. to Warehouses, Workrooms, &c., asking for the display of Notices *re* Spitting therein.

Handbills in English and Hebrew.

Forms *re* Cleansing sent to landlords of infected houses.

Notices to Tenants and Female Health Visitors *re* Disinfection and Cleansing.

Health Visitor's Report Form, used in reporting routine monthly visit.

Inspector's Report Forms *re* Disinfection of Houses.

Crossley Sanatorium Forms.

Circulars *re* Milk Supply.

Suggestions addressed to Farmers supplying milk for consumption in Manchester.

Copy of Regulations as to Dairies, Cow Sheds, and Milk Shops.

Clauses of the Manchester Corporation (General Powers) Act, 1899, regarding Tuberculosis and Milk.

Circular sent to Farmers *re* above.

Specification *re* alterations in construction of Cow Sheds within City Boundary.

MILK SUPPLY.

Report Form on the Veterinary Inspection of Farms outside the City of Manchester.

Form for particulars *re* each sample of milk taken from cow by Veterinary Inspectors at farm or dairy; original sent to Laboratory with sample; copy filed in Office for reference.

Circular sent to Farmers when sample from individual cow has been proved to cause Tuberculosis.

Forms *re* Inspection of City Farms and Cow Sheds.

Notices *re* Spitting issued by Public Health Department.

1. Bye-Law on Spitting in Public Places (1904).
2. Notice as to Spitting (1899).
3. Notice as to Spitting and Consumption (1899).
4. Notice as to Spitting in Public Houses.

Notice to Dairymen and Cowkeepers *re* Cleanliness of Cow Sheds, Cows, and Milkers' Hands.

See also the Manchester Exhibit in Appliances Section.

(Shown by courtesy of Dr. James Niven, Medical Officer of Health, Manchester.)

CITY OF LIVERPOOL.

POPULATION, 739,180.

PHTHISIS DEATH-RATE, 1.5 PER 1,000.

Series of Statistical Sheets.

Notification of Phthisis Forms.

Card—"Information for Consumptive People and Those who Live with Them."

Series of Views of Unsanitary Buildings.

Map showing how Unsanitary Areas are being dealt with.

Views of Common Lodging Houses and Municipal Dwellings.

The Milk Supply—Country and City Cow Sheds compared.

Municipal Sterilised Milk Depots.

Three Notices *re* Spitting.

(Shown by courtesy of Dr. Hope, Medical Officer of Health, Liverpool.)

CITY OF CARDIFF.

POPULATION (1906), 183,823.

PHTHISIS DEATH-RATE, 1.20 PER 1,000 OF POPULATION.

MEMORANDUM *re* THE PREVENTION OF CONSUMPTION.

Forms *re* Voluntary Notification, Inspection, and Disinfection.

Descriptive details *re* Tuberculosis from Annual Report of M. O. H.

(Sent by kindness of Dr. Edward Walford, Medical Officer of Health.)

COUNTY BOROUGH OF NORTHAMPTON.

POPULATION, 91,640.

PHTHISIS DEATH-RATE, 0.87 PER 1,000.

Statistical Tables—Occupational Mortality from Phthisis.

Typed statement of methods adopted by Public Health Department.

Handbill—"Instructions to Persons suffering from Consumption."

Investigation Sheets.

Details *re* Milk Supply.

Details *re* Tuberculosis in Northampton, from M. O. H.'s Annual Report for 1906.

(Sent by courtesy of Dr. James Beatty, Medical Officer of Health.)

COUNTY BOROUGH OF BRIGHTON.

POPULATION, 128,095.

PHTHISIS DEATH-RATE, 1.33 PER 1,000.

Diagrams *re* Notification.

Photograph of Consumption Wing of Hospital.

Forms, &c.

See exhibits in Appliances Section.

CITY OF NEW YORK.

Department of Health.

Population, 4,024,780.

Phthisis Death-rate, 2.12 (1905).

Cards used by the Department of Health in connection with the system of Compulsory Notification.

Notices, Handbills, and Forms.

The "Circular of Instruction to Consumptives and those who live with them," is printed bi-lingually, in English and one other language (German, Italian, Yiddish, Ruthenian, Slovak, Polish, Bohemian, or Chinese).

Forms, &c., in connection with Tuberculosis Clinic.

For details of the New York system see the *Handbook of the Division of Communicable Diseases of the Department of Health of the City of New York*, 1906, attached.

(Shown by courtesy of Dr. Herman Biggs and Dr. Jos. Billings, New York.)

Miscellaneous Exhibits.

Group of Photographs of the Royal National Hospital for Consumption, Newcastle, Co. Wicklow.

(Shown by courtesy of the Governors and Secretaries.)

Group of Photographs of the King Edward VII. Sanatorium, Midhurst, Sussex. Kindly sent by Messrs. F. Frith & Co., Ltd., Photographers, Reigate.

(Shown by courtesy of Dr. Noel Bardswell, Medical Superintendent.)

Group of Photographs of the Royal Sea Bathing Hospital, Margate, for the treatment of Tuberculosis and the Pre-tuberculous; founded 1791. The earliest specialisation as to the treatment of Tuberculosis (then known as Scrofula).

(Shown through the courtesy of Dr. Charles Heaton, Westgate-on-Sea.)

Group of Photographs of Nordrach-on-Dee Sanatorium, Banchory, N.B.

(Shown by courtesy of Dr. Lawson, Banchory, N.B.)

Group of Photographs of the Sanatorium of Kilcoole, Co. Wicklow.

(Shown by courtesy of Dr. Dunne.)

The Publications of the National Association for the Prevention of Tuberculosis, Dublin Branch :—

"Notice—Do Not Spit."

"Consumption and its Prevention." (60th thousand.)

"Consumption: Its History, and how to prevent its Spread." By E. P. Culverwell, F.T.C.D.

"Information for Consumptive People and those who Live with Them" (*Poster.*)

"What is Consumption?" (*Poster.*)

"Directions for Consumptive Patients." (*Hand-bill.*)

Diagram (8½ in. by 5½ in.) showing the mortality from twenty-two of the principal causes of death in Ireland.

Diagram (8½ in. by 5½ in.) showing the Death-rate from Tuberculosis in Ireland, as compared with England and Scotland.

Group of French and Spanish Posters.

Group of Statistical Charts of the Mortality from Tuberculosis, exhibited by the Prudential Assurance Company of America at the British Congress on Tuberculosis, London, 1901.

(Sent by the Parke's Museum, London, through the kindness of the Royal Sanitary Institute.) Numbered 1 to 18 inclusive. Two others unnumbered. Explanatory details on Charts.

Note *re* Coppin's Green Sanatorium, Clacton-on-Sea, attached to which is a market garden. Full value is paid for all work done by patients, who are thus able to reduce their expenses by their own efforts.

(Sent by Dr. Chapman.)

Letter from Dr. James Byrne, Leenane, to the Guardians of Oughterard Union *re* the Prevention of Tuber-

culosis; circulated by the Guardians amongst all County and District Councils in Ireland.

HISTORICAL EXHIBIT.

Three cases of works of Historical interest in connection with Consumption, collected by Dr. T. P. C. Kirkpatrick. Each work is accompanied by an explanatory card.

PATHOLOGICAL SECTION.

Models showing the appearance which a particle of the sputum of a consumptive person presents when stained with aniline dyes (carbol-fuchsin and methylene blue), and magnified 3,000 and 5,000 times.

(Made by Dr. C. L. Birmingham, Westport, Co. Mayo.)

LIST OF EXHIBITS BY DR. MCWEENEY.

1. Culture of Human Tubercle Bacilli.
2. Lung showing Tubercles } in Museum jars.
3. ,, ,, Cavities }
4. Viscera of small experimental animal showing effect of Inoculation with human Tubercle Bacilli.
5. Water Colour Drawing of Sputum containing Tubercle Bacilli; highly magnified.
6. Large diagrams showing stages in the division of the pulmonary alveoli by T. B.
7. Drawing illustrating Sputum-droplets containing Bacilli discharged by a Consumptive in the act of coughing.
8. Lantern Slides.

VETERINARY SECTION.

LIST OF EXHIBITS FROM THE ROYAL VETERINARY COLLEGE OF IRELAND.

Organised by PROFESSOR METTAM.

1. Miliary Tuberculosis, Lung of Horse.
2. Section of Portal Lymphatic Glands and Liver, Ox.

3. Kidney Tuberculosis, Ox.
4. Lung of Racoon; ditto, Leopard, Tuberculosis.
5. Miliary Tuberculosis, Lung of Pig.
6. Kidney of Ox, Tuberculosis.
7. Mediastinal Lymphatic Gland, Tuberculosis, Ox.
8. Tuberculosis, with cavity, Lung of Ox.
9. Caseous Tuberculous Pneumonia, Horse Lung in same jar, Mesenteric Gland of Dog, with portion of intestine; Tuberculosis.
10. Liver of Turkey, Tuberculosis.
11. Spleen of Horse, two specimens; Tuberculosis.
12. Liver of Dog, Tuberculosis.
13. Spleen of Pig, Tuberculosis.
14. Mesenteric Glands and Intestine; Tuberculosis; Ox.
15. Tuberculous Pericarditis; Ox.
16. Liver of Ox, with Tuberculous deposit.
17. Tuberculosis, Serous Envelope Spleen; Ox.
18. Tuberculous Lesions, Chest Wall; Ox.
19. Tuberculous Lesions on Abdominal Wall; "Grapes"; Ox.
20. Tuberculous Lesions on Pleura, removed from Chest Wall of a Cow; "Grapes."
21. Tuberculosis of Mammary Gland; Cow.

SPECIMENS :—

Cultures upon Glycerine Agar.
,, ,, Potato ,,
,, of Avian Tubercle bacilli.

DIAGRAMS :—

Phagocytosis, tubercle bacilli	iv.
Giant Cells, Liver of Rabbit	iii.
Epiploon, 4th day infection	ii.
Sputum	ii.
Degenerating bacilli Spleen	viii.
Branching bacilli	vii.
Intravascular Tuberculosis	v.

APPLIANCES SECTION.

Collected by Sir William J. Thompson.

An Exhibit of Appliances used in the Treatment of Consumption (spitting cups, flasks, &c, paper handkerchiefs, &c.) lent by Messrs. Fannin.

Sundry appliances supplied to poor Consumptives by the Public Health Departments of Manchester, Bristol, Sheffield, Brighton, and Dublin. Each with an explanatory card.

Appliances used at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow.

Turf Spittoons, suitable for use in Irish country cottages.

1. Model of Sanatorium made by Mr. S. Burge, Sandymount, Dublin.

2. Model of Sanatorium made by Messrs. Kennan & Sons, Dublin.

3. Model of Shelter made for Dr. Finegan, Carlingford, similar to a shelter in his possession.

Typed statements with each.

Books.—Set of modern popular works dealing with the Public Health Aspect of Tuberculosis. Supplied by Messrs. Fannin & Co., Ltd.

Miscellaneous Papers, Municipal Reports, &c.

ON VILLAGE GREEN.

Châlet, made for Dr. Hare, Larch Hill Sanatorium, Rockbrook, Co. Dublin, by Messrs. Kennan & Sons, Fishamble Street, Dublin.

Châlet, made for Dr. Smyth, Altadore Sanatorium, Kilpedder, Co. Wicklow, by Messrs. Kennan & Sons.

Châlet, made for Dr. Steede, Rostrevor Sanatorium, Warrenpoint, Co. Down, by Messrs. Kennan & Sons.

Revolving Sun-box, exhibited by Messrs. Kennan & Sons.

Shelter, supplied to Dr. Hare by Messrs. Boulton & Paul, Norwich.

Châlet, to accommodate two patients, similar to one erected at Enniskillen, Co. Fermanagh. Exhibited by Messrs. Humphreys, Ltd., Stephen's Green, Dublin, and Knightsbridge.

Tent, for the accommodation of consumptive patient. Exhibited by Messrs. J. F. Lanigan & Co., 1 Eden Quay, Dublin.

VILLAGE HOSPITAL.

Screen to protect body of a consumptive patient when the head of the bed is below open window. Exhibited by Messrs. Smith & Sheppard, Stephen's Green, Dublin.

MODEL COTTAGE No. 2

Two Contrast Rooms, fitted by Messrs. Anderson, Stanford & Ridgeway, Grafton Street, Dublin; one with dust-catching, light-excluding furniture, the other fitted on hygienic principles.

Reclining Chairs. Exhibited by Messrs. Anderson, Stanford & Ridgeway, Grafton Street, Dublin.

DOMESTIC SCIENCE SECTION.

Organised by Dr. Ella Webb and Dr. Lily Baker.

Milk Sterilisers of Various Makes.

Exhibited by Messrs. Fannin & Co., Limited, Grafton Street, Dublin; and Messrs. Smith & Sheppard, Stephen's Green, Dublin.

DISINFECTION.

Various Appliances for Disinfection, showing how simply and inexpensively Disinfection can be carried out.

Demonstrations in Sanatorium and Invalid Cooking given daily by Miss F. Roberts, formerly Chef at the Royal National Hospital for Consumption, Ventnor, assisted by Miss Braydon.